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In the Supreme Court of the United States

OCTOBER TERM, 1984

JOAN RANCE VUYANICH, et al.,

Petitioners,

v.

REPUBLIC NATIONAL BANK OF DALLAS,

Respondent.

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FIFTH CIRCUIT

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QUESTIONS PRESENTED

1. Whether a plaintiff bringing class claims of across-the-board employment discrimination under F. R. Civ. P. 23 has shown "[s]ignificant proof [of] a general policy of discrimination" where a district court finds after two lengthy class certification hearings and a lengthy trial that plaintiff and the members of her class suffered from "a common discriminatory animus" flowing from an employer's "central policy" of sex and race discrimination.

2. Whether a plaintiff has standing under Article III of the Constitution to bring claims of across-the-board employment discrimination on behalf of a class of applicants and employees where a district court finds after two lengthy class certification hearings and a lengthy trial that plaintiff and the members of her class suffered from "a common discriminatory animus" flowing from an employer's "central policy" of sex and race discrimination.

3. Whether a plaintiff who brings an employment discrimination claim under Title VII of the Civil Rights Act of 1964 may bring all claims that a district court finds could reasonably be expected to grow out of the charge she filed with the Equal Employment Opportunity Commission, including claims of across-the-board sex and race discrimination.

4. In reviewing the certification of a class under F. R. Civ. P. 23, whether a federal court of appeals is bound by the "clearly erroneous" rule of F. R. Civ. P. 52(a) in reviewing a district court's findings of fact, and by the "abuse of discretion" rule in reviewing a district court's mixed conclusions of fact and law.

This petition is filed by Joan Rance Vuyanich, Ellen Johnson, Marjorie Lee Jackson, Marisu Fenton, and Dorothy Hooks. No petition is being filed by Portia Williams and Martha Davis, who were parties in the court of appeals. Republic National Bank of Dallas is the sole respondent.

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PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FIFTH CIRCUIT

Joan Rance Vuyanich, Ellen Johnson, Marjorie Lee Jackson, Marisu Fenton and Dorothy Hooks petition for a writ of certiorari to review the judgment of the United States Court of Appeals for the Fifth Circuit in this case.

OPINIONS BELOW

The opinion of the court of appeals (App. B, *infra*, 2a-12a) is reported at 723 F.2d 1195. The dissenting opinion in the court of appeals on denial of the petition for rehearing *en banc* (App. C, *infra*, 13a-18a) is reported at 736 F.2d 160. The four opinions of the district court on the class action issues (App. E, *infra*, 42a-358a; App. F, *infra*, 359a-387a; App. G, *infra*, 388a-396a; App. H, *infra*, 397a-407a) appear at 505 F.Supp. 224; 82 F.R.D. 420; 78 F.R.D. 352; 409 F.Supp. 1083.[1]

[1]A fifth opinion of the district court, limited to the impact of *Texas Dep't of Public Affairs v. Burdine*, 450 U.S. 248 (1981), appears at 521 F. Supp. 656.

JURISDICTION

The judgment of the court of appeals (App. A, *infra*, 1a) was entered on January 30, 1984. A petition for rehearing *en banc* was denied on July 12, 1984. App. C, *infra*, 13a. The jurisdiction of this Court is invoked under 28 U.S.C. § 1254(1).

PROVISIONS INVOLVED

Article III, Section 2, of the United States Constitution provides in pertinent part:

> The judicial Power shall extend to all Cases, in Law and Equity, arising under . . . the Laws of the United States . . . .

Rule 23(a) of the Federal Rules of Civil Procedure provides in pertinent part:

> One or more members of a class may sue or be sued as representative parties on behalf of all only if . . . (2) there are questions of law or fact common to the class, (3) the claims or defenses of the representative parties are typical of the claims or defenses of the class . . . .

Rule 52(a) of the Federal Rules of Civil Procedure provides in pertinent part:

> . . . Findings of fact shall not be set aside unless clearly erroneous . . . .

Section 706(b) and (f) of Title VII of the Civil Rights Act of 1964, 42 U.S.C. § 2000e-5(b), (f), provides in pertinent part:

> Whenever a charge is filed by . . . a person claiming to be aggrieved, . . . the [Equal Employment Opportunity] Commission . . . shall make an investigation

> thereof. Charges . . . shall contain such information and be in such form as the Commission requires . . . .
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> . . .
>
> . . . [I]f within one hundred and eighty days from the filing of such charge . . ., the Commission has not filed a civil action, . . . the Commission shall so notify the person aggrieved and within ninety days after the giving of such notice a civil action may be brought against the respondent named in the charge . . . by the person claiming to be aggrieved . . . .

STATEMENT

A. *Background*

Fifteen years ago, petitioner Vuyanich, a black female, was a clerk for respondent Republic National Bank of Dallas ("the Bank"), the largest bank in the South; she was fired on July 28, 1969, a month after marrying a white male and shortly after introducing her husband to her supervisor. App. E, *infra*, 47a; App. H, *infra*, 405a. A day before her firing, her supervisor told Ms. Vuyanich that she "probably did not need a job any more since her husband was white." App. E, *infra*, 47a (footnote omitted); App. H, *infra*, 405a. Ms. Vuyanich filed a charge of discrimination with the Equal Employment Opportunity Commission ("EEOC"); following an investigation, the EEOC determined on November 6, 1972, that there was reasonable cause to believe that the Bank had violated Title VII of the Civil Rights Act of 1964 ("Title VII"). App. E, *infra*, 47a-48a.

Thirteen years ago, petitioner Johnson, a black female graduate of the University of Texas at Arlington, applied for a position as a management trainee or in personnel administration. App. E, *infra*, 48a. The day she applied, September 23, 1971, she was turned down; after being turned

down, she expressed an interest in any available position, but she was turned down again. *Id.* Ms. Johnson filed a charge with the EEOC that asserted across-the-board sex and race discrimination in hiring, recruiting, job requirements, training, promotion and personnel policies; following an investigation, on August 14, 1973, the EEOC determined that there was reasonable cause to believe that the Bank had violated Title VII with respect to most of Ms. Johnson's across-the-board assertions. *Id.*

More than eleven years ago, on March 22 and December 3, 1973, respectively, petitioners Vuyanich and Johnson filed class action suits asserting claims of across-the-board sex and race discrimination in violation of Title VII. *Id.*

B. *First Class Hearing*

As the fifth district judge assigned to the *Vuyanich* case, Hon. Patrick E. Higginbotham (now Circuit Judge) held two lengthy class certification hearings pursuant to Rule 23 of the Federal Rules of Civil Procedure ("Rule 23").[2] At the first hearing, February 3-4, 1978,[3] Judge Higginbotham heard nine plaintiffs' and three defendant's witnesses and received 76 plaintiffs' and 18 defendant's exhibits. Based on that proof, the judge concluded that petitioners had satisfied each of Rule 23's prerequisites to certification, and he certified a class of females and blacks who were employed by the Bank, or who applied to but were not hired by the Bank, on or after February 16, 1969.[4] App. G, *infra*, 389a.

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[2]Hon. Eldon B. Mahon, a district judge previously assigned to the *Vuyanich* case, had conditionally certified it as a class action. App. G, *infra*, 388a.

[3]Judge Higginbothan heard motions in the *Vuyanich* and *Johnson* cases together. After the hearing, he consolidated them for trial. App. G, *infra*, 388a-389a.

[4]The date is 180 days before the filing of Ms. Vuyanich's charge with the EEOC. App. E, *infra*, 49a n.4.

In opposing certification of a class, the Bank argued that Rule 23 precluded a plaintiff from bringing across-the-board claims of sex and race discrimination. Although Judge Higginbotham rejected that argument, he said: "That sex or race claims often present issues of inherently class-wide impact does not mean that Title VII cases are exempt from or automatically meet the requirements of Rule 23." App. G, *infra*, 391a.[5] Judge Higginbotham found, however, that the Bank had "a central policy" of sex and race discrimination; he said:

> The issue is whether the proposed class actually presents distinctly discrete claims or whether the claims, though possessing different factual characteristics, are but different manifestations of *a central core violation.* Plaintiffs charge, and have virtually made out a phase I prima facie case that all complaints flowed from *a central policy* to hire blacks and females only into lesser paying jobs and thereafter deny them equal promotion opportunity. In doing so, they have exceeded the requirements for demonstrating the existence of a class. Indeed plaintiffs' proof is more the evidence expected in a phase I hearing than in hearing a class certification.

Id. at 392a. (emphases added).[6]

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[5]At the hearing, Judge Higginbotham said:

> Obviously just saying sex discrimination and race discrimination doesn't really say anything, doesn't tell me anything in terms of the issues. What I'm talking about [is what] class-wide issues, what act . . ., what policy, what procedure of the Bank do you point to as being violative of Title VII.

Transcript of Hearing, February 4, 1978, pp. 504-05.

[6]Judge Higginbotham said also:

> [The] data . . . suggests strongly that plaintiffs have demonstrated at least prima facie that defendant's personnel practices have been infested to the core by racial and sexual discrimination.

App. G, *infra*, 391a.

Judge Higginbotham rejected the Bank's argument that this Court's opinion in *East Texas Motor Freight System, Inc. v. Rodriquez*, 431 U.S. 395 (1977), had precluded the existence of a class of both applicants and employees; finding that plaintiffs and the class suffered from a common discriminatory animus, the judge said:

> . . . *Rodriguez* did not overturn this circuit's view that an applicant denied employment is not necessarily foreclosed from representing employees hurt by practices flowing from the same animus.
>
> . . .
>
> . . . *Rodriguez* does not mean that a class representative must suffer the *same* injury as his class members. Such a strict reading of its holding would frustrate the goals of Title VII. . . . As [persons] allegedly aggrieved by some of defendant's practices, Vuyanich and Johnson may represent other class members suffering from different practices, but the product of the same animus, certainly where there is a nexus among the practices.

App. G, *infra*, 394a-395a (original emphasis).

C. *Second Class Hearing*

A little over a year later, on March 19-21, 1979, Judge Higginbotham heard six plaintiffs' and four defendant's witnesses on the Bank's motion to decertify or redefine the class and the motion of six persons to intervene as plaintiffs. This time the Bank argued that Article III, as well as Rule 23, precluded a plaintiff from bringing across-the-board claims of sex and race discrimination. After reviewing at length this Court's decisions on standing, App. F, *infra*, 360a-364a, Judge Higginbotham concluded:

> [T]his question of whether the entities before the court satisfy Article III's requirement of an injury in fact ought to be separate from and should not be con-

> fused with the inquiry into the relationship between the class representative and the putative class. Although courts sometimes mistakenly analyze the link between the representative and the putative class in Article III terms, that relationship is defined by Rule 23.

Id. at 362a.

Then, for the second time, Judge Higginbotham considered whether plaintiffs had satisfied Rule 23's prerequisites to certification for their claims of across-the-board discrimination. Reviewing the proof once again,[7] the judge reaffirmed his finding that a common discriminatory animus pervaded the Bank's employment practices and his conclusion that plaintiffs had satisfied Rule 23. *Id.* at 368a-381a. Further, he divided the class into five subclasses, *id.* at 374a-376a,[8] and granted the intervention of three persons as plaintiffs to represent, or help represent, three of the subclasses. *Id.* at 385a-387a.

D. *Trial*

Judge Higginbotham said in his trial opinion:

> In the course of 24 days of testimony [commencing October 15, 1979], the court heard from over three

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[7]Judge Higginbotham subsequently characterized the statistical proof submitted by plaintiffs at the second class hearing as "sophisticated." App. E, *infra*, 50a; *see id.* at 58a ("substantial").

[8]The court divided the class into employee and applicant subclasses; further, it split the subclasses according to whether the employment positions were exempt or not exempt from the Fair Labor Standards Act. App. F, *infra*, 375a-376a. Thus, there were two "exempt" subclasses: a. black and female exempt employees; b. unsuccessful black and female applicants for exempt positions. Because of a potential conflict of interest between female and black nonexempt employees, there were *three* "nonexempt" subclasses; c. female nonexempt employees; d. black nonexempt employees; and e. unsuccessful black applicants for nonexempt positions. There was no sixth subclass, of unsuccessful female applicants for nonexempt positions, because the court found "insufficient evidence to raise a class question of whether female nonexempt applicants were victims of discrimination." App. F, *infra*, 384a.

> dozen witnesses and received thousands of exhibits into evidence. Ten of these witnesses were experts in the fields of computer science, statistics, business, or economics.

App. E, *infra*, 52a. His opinion comprises 165 pages of Federal Supplement.

Recognizing his duty to evaluate class status continually, *id.* at 52a-53a, Judge Higginbotham considered for a third time whether plaintiffs had satisfied Rule 23's prerequisites to certification for their claims of across-the-board discrimination. App. E, *infra*, 53a-60a. He concluded:

> Only where the plaintiff alleges that the particular discrimination she has suffered is due to *a racist or sexist animus pervading the defendant's practices*, and only where the plaintiff presents *sufficient proof* of that allegation at the class certification stage, should an action be certified as an "across-the-board" class action.

Id. at 58a (emphases added). For the third time, Judge Higginbotham found that plaintiffs had shown sufficient proof of "a common discriminatory animus characteristic of 'across-the-board' actions." *Id.* And for the third time, he concluded that plaintiffs had satisfied Rule 23. *Id.* at 62a-69a.

In addition to reaffirming his finding and conclusion, Judge Higginbotham said that the evidence presented at trial reinforced his certification decision. He said:

> What was not then apparent, but which now reinforces the decision to treat this as an "across-the-board" suit, was the fact that much of the statistical proof presented at trial would mirror [the] intertwined relationship [between promotion, pay, training, testing, transfer, job assignment and classification, job content, and constructive discharge].

Id. at 59a.[9]

After reviewing the evidence presented at trial, the judge concluded that petitioners had prevailed in several of their claims of employment discrimination.

E. *Appeal*

On appeal, the court of appeals reversed. App. A, *infra*, 1a. It held, on Rule 23, Article III and Title VII grounds, that plaintiffs could not bring claims of across-the-board discrimination.

First, while acknowledging that this Court had said in *General Tel. Co. of the Southwest v. Falcon*, 457 U.S. 147, 159 n.15 (1982), that under Rule 23 a plaintiff could bring a claim of across-the-board discrimination where she showed

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[9]The Bank argued also that Title VII precluded a plaintiff from bringing in her judicial complaint any claims other than those found in her EEOC charge.

It argued that petitioner Vuyanich had brought only a charge of race discrimination in her EEOC charge and that, therefore, her judicial complaint of sex, as well as race, discrimination, was barred by Title VII. Hon. Eldon B. Mahon, previously assigned to the *Vuyanich* case, had held that the statement of Ms. Vuyanich's supervisor immediately prior to her dismissal (that she "probably did not need a job any more since her husband was white") "clearly smacks of sexual as well as racial discrimination," App. H, *infra*, 405a; accordingly, he denied the Bank's motion to strike the claim of sex discrimination. Judge Higginbotham reaffirmed that ruling. App. F, *infra*, 384a n.10.

More generally, the Bank argued that neither petitioner Vuyanich nor petitioner Johnson could bring claims of across-the-board discrimination, ostensibly because such claims could not be properly brought in their EEOC charges. (Petitioner Johnson had brought a claim of across-the-board sex and race discrimination in her EEOC charge. *See* p. 4 *supra*.) Judge Higginbotham held that Title VII did not preclude a plaintiff who brought a single discriminatory claim in her EEOC charge from bringing other claims on behalf of a class in her judicial complaint. App. F, *infra*, 383a.

"significant proof that an employer operated under a general policy of discrimination," Chief Judge Clark held that a plaintiff failed to prove such a policy where an employer assertedly used *any* objective criteria in its hiring process. See App. B, *infra*, 7a. Without once mentioning Judge Higginbotham's thrice-made findings that a "common discriminatory animus" flowing from a "central policy" pervaded the Bank's employment practices, the court looked instead to Judge Higginbotham's opinion on the merits. There, the court found what it believed was a finding that the Bank relied upon some objective criteria in its hiring process; the court said:

> The district court's finding that the Bank relied on two objective inputs — education and experience — in *its necessarily subjective hiring process* . . . precludes reliance on this "general policy of discrimination" exception.

App. B, *infra*, 7a (emphasis added).

Second, construing this Court's decisions in *Warth v. Seldin*, 422 U.S. 490 (1975); and *Blum v. Yaretsky*, 457 U.S. 991 (1982), Chief Judge Clark held that under Article III petitioners had no standing to bring on behalf of a class any claims other than the particular hiring or termination claims petitioners themselves had. The court said:

> Because Johnson and Vuyanich can allege injuries only as a result of the Bank's hiring and termination practices, respectively, they lack standing to assert class claims arising from the bank's other employment practices — compensation, promotion, placement, and maternity practices.

App. B, *infra*, 9a.

Third, Chief Judge Clark held that under Title VII petitioners could bring in a judicial complaint only claims

"like or related" to the individual claims in their EEOC charges. *Id.* at 10a. Since their EEOC charges should have been limited to "sex discrimination in hiring or race discrimination in termination," *id.*,[10] petitioners could not bring claims of across-the-board discrimination.[11]

The panel denied rehearing, and the court of appeals, 9 to 5 (Judge Higginbotham, recusing himself), denied rehearing *en banc*. App. C, *infra*, 13a.

Writing a jointly-authored dissenting opinion for five judges, Judges Rubin and Tate disagreed with the panel's reading of *General Tel. Co. of the Southwest v. Falcon*, 457 U.S. 147 (1982). Judges Rubin and Tate said:

> [I]f the same biased employment selection devices affect all members of a putative class, one representative may appropriately advance claims of all those so affected, even though she is not individually affected by some of the particulars of the across-the-board discrimination.

App. C, *infra*, 16a. The dissenting judges disagreed with the panel that an employer's asserted use of any objective criteria precluded the bringing of class claims of across-the-board discrimination. They said:

> We have never required that a plaintiff prove the complete absence of objective criteria to establish the existence of a discriminatory policy. . . .
>
> Moreover, an employer should not be able to stop certification of a class-action discrimination suit in its

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[10]The court did not explain why it set aside Judge Mahon's finding that petitioner Vuyanich had brought a claim of sex, as well as race, discrimination in termination. See n.9 *supra*.

[11]Because petitioners could not bring claims other than "sex discrimination in hiring or race discrimination in termination," intervenors Jackson, Fenton and Hooks likewise could not bring other claims. App. B, *infra*, 10a.

> tracks by simply alleging that hiring is based on "objective" qualifications of "education" and "experience." The court must look at how these professed criteria are actually applied.

App. C, *infra*, 17a.

The dissenting judges disagreed also with the panel's reading of Judge Higginbotham's opinion on the merits. Judge Higginbotham, they said, had "found that the Bank's selection criteria for hiring were flexible," *id.* at 16a, and "that the low proportion of blacks and women in officer positions did *not* result from education and experience requirements." *Id.* at 18 (original emphasis).

REASONS FOR GRANTING THE PETITION

In *General Tel. Co. of the Southwest v. Falcon*, 457 U.S. 147, 159 n.15 (1982), this Court said that a plaintiff could bring a class claim of across-the-board discrimination where she showed "[s]ignificant proof that an employer operated under a general policy of discrimination . . . ." Nonetheless, the court of appeals did not discuss Judge Higginbotham's finding — made three times, after each of two lengthy class hearings and a month-long trial — that "a common discriminatory animus" flowing from the employer's "central policy" of sex and race discrimination pervaded the employer's employment practices. Instead, the court of appeals held that a plaintiff did not show "[s]ignificant proof [of] a general policy of discrimination" where an employer asserted that it used some objective criteria "in its necessarily subjective hiring process . . . ." App. B, *infra*, 7a.

As the five dissenting judges recognized, the court of appeals' holding means in effect that across-the-board class actions will no longer be possible, because every employer can and will assert that it uses some objective criteria. The court of appeals' holding means that no matter how exten-

sive and intensive the inquiry by the district judge and no matter how weighty his findings of discriminatory animus and centralized policy, nonetheless an employer may "stop certification of a class-action discrimination suit in its tracks by simply alleging that hiring is based on 'objective' qualifications of 'education' and 'experience.'" App. C, *infra*, 17a (dissenting opinion).

The court of appeals' holding is inconsistent with this Court's decision, and its construction of Rule 23, in *Falcon*, and it has created a conflict in the circuits regarding the viability after *Falcon* of class claims of across-the-board discrimination. Moreover, in addition to the Rule 23 question, the court of appeals' holding raises three important questions undecided by this Court: a. whether Article III precludes across-the-board class actions; b. whether Title VII precludes across-the-board class actions by limiting the judicial complaint to the individual claim specified in the EEOC charge of discrimination; and c. whether a court of appeals is bound by the clearly-erroneous and abuse of discretion rules in reviewing class action certifications.

A. *Rule 23*

1. This Court has twice reviewed the propriety of across-the-board class claims and has twice refused to reject them. This case presents a logical sequel to those decisions, a case where a district judge did all that those decisions instructed, and more.

In both *East Texas Motor Freight System, Inc. v. Rodriquez*, 431 U.S. 395 (1977), and in *General Tel. Co. of the Southwest v. Falcon*, 457 U.S. 147 (1982), this Court held that the mere allegation of racial discrimination was not alone sufficient to satisfy the prerequisites of Rule 23. Rather, where across-the-board class claims are asserted, the Court

instructed district judges "to evaluate carefully the legitimacy of the named plaintiff's plea that he is a proper class representative under Rule 23(a)." *Id.* at 160.

In *Rodriguez*, where plaintiffs failed to move for class certification in the district court, this Court said that an allegation of discrimination "does not in itself ensure the party who has brought the lawsuit will be an adequate representative" under Rule 23(a)(4). 431 U.S. at 405. And in *Falcon*, where the district court held no hearing on the issue of class certification, this Court said that "the allegation that . . . discrimination has occurred neither determines whether a class action may be maintained in accordance with Rule 23 nor defines the class that may be certified."[12] 457 U.S. at 157. In *Falcon*, this Court pointedly said, however, that where a plaintiff showed "[s]ignificant proof [of] a general policy of discrimination," plaintiff could bring on behalf of a class claims other than plaintiff's own. *Id.* at 159 n.15.

Unlike the district courts in *Rodriguez* and *Falcon*, Hon. Patrick E. Higginbotham, then district judge, found "significant proof" of such a general policy, or as he described it, "a common discriminatory animus" flowing from a "central policy" of sex and race discrimination. See pp. 4-8 *supra*. Unlike the district courts in *Rodriguez* and *Falcon*, Judge Higginbotham conducted hearings on the issue — one two-day hearing, one three-day hearing, and further consideration during a month-long trial — and wrote three extensive opinions, twice reaffirming his findings and conclusions.

The court of appeals erred in disregarding Judge Higginbotham's findings and conclusions. The court of appeals

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[12]Satisfaction of Rule 23(a)(2) and (a)(3) was at issue.

erred in looking instead to Judge Higginbotham's opinion on the merits and, as the five dissenting judges said, not reading that opinion with appropriate deference. But most importantly, the court of appeals erred in holding that an employer's assertion that it used any objective criteria in its subjective hiring process was enough to preclude the existence of a general policy of discrimination and, therefore, enough to preclude an across-the-board class action. As Judges Rubin and Tate concluded for the dissenting judges, the panel's opinion "undermines *Falcon's* reservation for broad class certification." App. C, *infra*, 18a.[13]

2. A clear majority of the courts of appeals that have faced the issue have held that *Falcon* does not preclude a plaintiff from bringing class claims of across-the-board discrimination; none of those courts has limited such class claims to those where an employer used subjective criteria exclusively. The majority understanding of *Falcon* is perhaps best stated by Chief Judge Winter's opinion in *Lilly v. Harris-Teeter Supermarket*, 720 F.2d 326, 333 (4th Cir. 1982) (footnote omitted), *cert. denied*, 104 S. Ct. 2154 (1984):

> In *Falcon*, the Court rejected the Fifth Circuit's "across the board" rule that an employee who suffers racial discrimination in any employment practice automatically may maintain a Title VII class action for all company employees as to all discriminatory employment practices. But the Court also rejected those cases that had interpreted its decision in [*Rodriguez*] as requiring that the class representative necessarily have

[13]If the court of appeals is correct, then any board of education can defeat any class action that claims system-wide discrimination in student assignment; the board need only assert that assignment is based in part on the objective criterion of proximity to an appropriate school.

> suffered discrimination in precisely the same employment practice as did all the other members of the class. Instead, the Court reiterated that each case must turn, based upon its particular facts, on whether the individual Title VII claim of the named plaintiff and the claims of the Title VII class he purports to represent raise common questions of law or fact.

See *De La Fuente v. Stokley-Van Camp, Inc.*, 713 F.2d 225, 232 (7th Cir. 1983) ("[t]he typicality requirement [of Rule 23] may be satisfied even if there are factual distinctions between the claims of the named plaintiffs and those of other class members [; t]hus, similarity of legal theory may control even in the face of differences of fact"); *Jordan v. County of Los Angeles*, 713 F.2d 503, 504 (9th Cir. 1983), *as amended*, 726 F.2d 1366, 1366-67 (1984) ("*Falcon* does not prohibit 'across-the-board' class formation in every instance . . . Across-the-board actions aimed at a specific hiring practice are permissible under Rule 23 . . ."); *McKenzie v. Sawyer*, 684 F.2d 62, 74 (D.C. Cir. 1982) ("[t]his is . . . a case in which those seeking advancement to journeyman and those seeking promotion beyond the journeyman level were properly certified as members of the same class, for it is a case of similar employment practices, applied to related decisions"). Cf. *Freeman v. Motors Convoy, Inc.*, 700 F.2d 1339, 1347 (11th Cir. 1983) (holding that the across-the-board rule is "now defunct" but allowing employees to show under Rule 23 that they could represent applicants).

By contrast, in addition to other panels of the Fifth Circuit, only the court of appeals for the Eighth Circuit and a district court in the Third Circuit have concurred in the instant holding that *Falcon* generally precludes a plaintiff from bringing on behalf of a class any claim other

than precisely plaintiff's own. See *Redditt v. Mississippi Extended Care Centers, Inc.*, 718 F.2d 1381, 1387 (5th Cir. 1983) ("[u]nder *Falcon*, plaintiff cannot serve as class representative with respect to hiring, promotion, or any other employment practices excepting discriminatory discharge because she does not possess the same interest and did not suffer the same injury as the other members of the class"); *Craik v. Minnesota State University Board*, 731 F.2d 465, 480 n.18 (8th Cir. 1984) ("[i]n *Falcon* the Court held that a plaintiff who alleged that he had been discriminatorily denied a promotion was not a proper representative for a class claim of discriminatory hiring practices [;h]ere, in contrast, we are not confronted with two such independent employment practices as hiring and promotion"); *Ladele v. Consolidated Rail Corp.*, 95 F.R.D. 198, 202-03 (E.D. Pa. 1982) (plaintiff employee's claims "which challenge defendant's supervision, compensation, promotion and termination practices . . . bear neither legal nor factual similarity to the claims of a rejected applicant challenging recruitment, testing and placement practices").

In view of this conflict, what constitutes "[s]ignificant proof [of] a general policy of discrimination" presents an important question which this Court should decide. See Note, *Reinstating Vacated Findings in Employment Discrimination Class Actions: Reconciling* General Telephone Co. v. Falcon *with* Hill v. Western Electric Co., 1983 DUKE L. J. 821. This case presents a fully-developed record in which to decide that question.

B. *Standing*

The holding of the court of appeals — that plaintiffs injured "as a result of [an employer's] hiring and termination practices . . . lack standing to assert class claims arising

from the [employer's] other employment practices — compensation, promotion, placement, and maternity practices," App. B, *infra*, 9a — has no basis in precedent and indeed is inconsistent with the traditional decisional law of representation in federal court. Moreover, the impact of the holding on class actions not only in the Title VII area but in all substantive areas, is profound.

1. Judge Higginbotham, in his second class opinion, correctly stated the distinction between standing and representation. He said:

> [T]he question of whether the entities before the court satisfy Article III's requirement of an injury in fact ought to be separate from and should not be confused with the inquiry into the relationship between the class represenative and the putative class. Although courts sometimes mistakenly analyze the link between the representative and the putative class in Article III terms, that relationship is defined by Rule 23.

App. F, *infra*, 362a. The court of appeals made precisely the mistake of which Judge Higginbotham spoke. Each of the court's authorities concerned not class representation but plaintiff's own standing to assert a claim for plaintiff. While this Court has not spoken directly to the issue, it has for example recognized that a class may have standing on its own and that a plaintiff may represent such a class notwithstanding the mootness of plainiff's own claim. See, e.g., *United States Parole Comm'n v. Geraghty*, 445 U.S. 388 (1980). This Court has recognized that, where a class has standing on its own, the issue of plaintiff's relationship to that class is one of representation under Rule 23 and not of standing. See, e.g., *Sosna v. Iowa*, 419 U.S. 393 (1975). These statements by the Court are but a recognition

of the traditional rule that a representative's right to assert a claim on behalf of an entity with standing is a matter of procedural rule and administration, not of standing. See, e.g., Greenstein, *Bridging the Mootness Gap in Federal Court Class Actions*, 35 STAN. L. REV. 897, 914-15 (1983).

Even were Article III relevant to the issue of whether a plaintiff with standing could represent a class with standing, the court of appeals' holding that a plaintiff has standing to represent only the class having precisely the same claims, is simply wrong. Historically, Rule 23 and its predecessors have sought to capture what similarity of interest and what similarity in injury are prerequisites to proper representation, but they have never, even in the early-eighteenth-century origins of group actions, concluded that representation was proper only where plaintiff and the class represented had precisely the same claims. See F. CALVERT, PARTIES TO SUITS IN EQUITY 1-18 (1837). Given this background in non-constitutional practice, there is no basis for incorporating the court of appeals' narrow rule of representation into Article III standing jurisprudence.

2. The impact of the court of appeals' Article III holding is profound. Whether the subject area be antitrust and the conduct complained of be practices that monopolize; whether the subject area be securities and the conduct complained of be practices that deceive; or whether the subject area be employment and the conduct complained of be practices that discriminate, the holding of the court of appeals requires that the conduct be attacked and remedied in small steps no matter how common the practices are in origin and policy. This holding, superceding Rule 23 and statutory standing, signals the end of remedial action against large-scale lawlessness and the demise of a device born in economy and expedition.

C. *Title VII*

The court of appeals' holding — that Title VII precludes plaintiffs from asserting in a judicial complaint any claim other than the individual claim in their EEOC charge — departs from the majority rule in the circuits, a rule originating in a Fifth Circuit decision, *Sanchez v. Standard Brands, Inc.*, 431 F.2d 455 (1970). While the court of appeals referred to *Sanchez*, it in effect abandoned its rule that plaintiff could assert in a judicial complaint any claim "which can reasonably be expected to grow out of [an EEOC investigation of] the charge of discrimination." *Id.* at 466. The impact of this holding on class actions is profound, too.

1. Nothing in the language of Title VII restricts the claims in a judicial complaint to the charge filed with the EEOC. As Judge Goldberg observed in *Sanchez*, *supra* at 466, the "statutory scheme" of Title VII — an EEOC investigation preceding any judicial complaint — implies that the judicial complaint be limited to the scope of the EEOC investigation which can reasonably be expected to grow out of the charge. This rule satisfies the statutory purpose of assisting the EEOC in its statutory duty. At the same time, it does not penalize "laymen, unassisted by trained lawyers . . . ." *Love v. Pullman Co.*, 404 U.S. 522, 527 (1972).

There is nothing in the statute or statutory scheme that precludes an across-the-board claim in a judicial complaint if such a claim could reasonably be expected to grow out of an EEOC investigation. The EEOC is subject to no such preclusion in actions brought under Section 706. See *General Tel. Co. of the Northwest v. EEOC*, 446 U.S. 318 (1980). So long as she satisfies Rule 23, particularly the commonality and typicality prerequisites, a private plaintiff should be subject to no such preclusion in her actions brought under Section 706. The court of appeals' holding imposes in effect

an exhaustion requirement on each subclass of an across-the-board class, contrary to the purpose of Title VII. See *Albemarle Paper Co. v. Moody*, 422 U.S. 405, 414 n.8 (1975).

2. The court of appeals' holding has created and added to a split in the circuits. Three circuits adhere to the reasonable scope of investigation rule. See *Hicks v. ABT Associates, Inc.*, 572 F.2d 960, 966 (3d Cir. 1978); *McBride v. Delta Air Lines, Inc.*, 551 F.2d 113, 115 (6th Cir.), *vacated on other grounds*, 434 U.S. 916, *cert. denied*, 434 U.S. 927 (1977); *Serpe v. Four-Phase Systems, Inc.*, 718 F.2d 935, 937 (9th Cir. 1983). One circuit seems to adhere to an actual scope of the investigation rule. See *Evans v. U.S. Pipe & Foundry Co.*, 696 F.2d 925, 928-29 (11th Cir. 1983); *Eastland v. Tennessee Valley Authority*, 714 F.2d 1066, 1067-68 (11th Cir. 1983). One other circuit, in addition to the Fifth, adheres to an actual charges rule. See *Ekanem v. Health & Hospital Corp.*, 724 F.2d 563, 573 (7th Cir. 1983), *petition for cert. filed*, 53 U.S.L.W. 3016 (U.S. May 4, 1984) (No. 83-1805).

D. *Scope of Review*

The court of appeals ignored two black-letter rules of law — that "[f]indings of fact shall not be set aside unless clearly erroneous," Fed. R. Civ. P. 52(a); see *Pullman-Standard v. Swint*, 456 U.S. 273 (1982); and that a mixed conclusion of fact and law whether Rule 23 has been satisfied should stand absent an "abuse of discretion." See, e.g., *Cypress v. Newport News General & Nonsectarian Hosp. Ass'n*, 375 F.2d 648, 653 (4th Cir. 1967); *Walker v. Jim Dandy Co.*, 638 F.2d 1330, 1334 (5th Cir. 1981); *Georgia Ass'n of Retarded Citizens v. McDaniel*, 716 F.2d 1565, 1571 n. 3 (11th Cir. 1983); cf. *In re Engelhard & Sons*, 231 U.S. 646, 650-51 (1914).

While normally the erroneous neglect by a court to apply an established rule is insufficient to warrant this Court's grant of certiorari, this Court should decide the important question of whether the established rules do indeed govern review of certification decisions. Here, Judge Higginbotham, then district judge, held two lengthy class hearings and a month-long trial and found among other things that "a common discriminatory animus" flowing from a "central policy" of sex and race discrimination pervaded the Bank's employment practices. Here, Judge Higginbotham explicitly stated that he was not relying merely upon an allegation of sex and race discrimination. Instead of so relying, he correctly applied this Court's decision in *East Texas Motor Freight System, Inc. v. Rodriguez*, 431 U.S. 395 (1977); and he correctly predicted this Court's decision in *General Tel. Co. of the Southwest v. Falcon*, 457 U.S. 147 (1982). On the basis of his findings and a correct understanding of this Court's decisions, he concluded — three times — that plaintiffs had satisfied the prerequisites of Rule 23 for their claims of across-the-board discrimination.

The court of appeals did not hold that Judge Higginbotham's findings were clearly erroneous; indeed it did not mention his findings at all. The court of appeals said that Judge Higginbotham did not know of the decision in *Falcon*, but plainly he applied the legal principles of *Falcon* before it was decided. The court of appeals did not hold that Judge Higginbotham had abused his discretion in his mixed conclusions of fact and law. The court of appeals thus violated both established rules governing the scope of review.

CONCLUSION

The petition for a writ of certiorari should be granted, the judgment of the court of appeals should be vacated, and the case should be remanded for consideration of the remaining issues on appeal.

Respectfully submitted,

Neil H. Cogan
Richard L. Arnold
Linda N. Coffee
JoAnn Peters

October 8, 1984

APPENDIX A

UNITED STATES COURT OF APPEALS FOR THE FIFTH CIRCUIT

No. 81-1357

JOAN RANCE VUYANICH,
Plaintiff-Appellee
Cross-Appellant,
and
MARISU FENTON,
Intervenor-Appellee,
MARJORIE LEE JACKSON
and DOROTHY HOOKS,
Intervenors-Appellants,
and
PORTIA WILLIAMS
and MARTHA DAVIS,
Movants-Appellants,

v.

REPUBLIC NATIONAL BANK
OF DALLAS,
Defendant-Appellant
Cross-Appellee.

ELLEN JOHNSON,
Plaintiff-Appellee
Cross-Appellant,

v.

REPUBLIC NATIONAL BANK
OF DALLAS,
Defandant-Appellant
Cross-Appellee.

Appeals from the United States District Court for the Northern District of Texas.

January 30, 1984

JUDGMENT

Before CLARK, Chief Judge, GARZA and POLITZ, Circuit Judges.

This cause came on to be heard on the record on appeal and was argued by counsel;

ON CONSIDERATION WHEREOF, It is now here ordered and adjudged by this Court that the judgment of the said District Court in this cause be, and the same is hereby, vacated; and that this cause be, and the same is hereby remanded to the said district court for further proceedings consistent with the opinion of this Court;

IT IS FURTHER ORDERED that each party is to bear its own costs on appeal in this Court.

APPENDIX B

UNITED STATES COURT OF APPEALS, FOR THE FIFTH CIRCUIT

No. 81-1357

JOAN RANCE VUYANICH,
Plaintiff-Appellee
Cross-Appellant,
and
MARISU FENTON,
Intervenor-Appellee,
MARJORIE LEE JACKSON
and DOROTHY HOOKS,
Intervenors-Appellants,
and
PORTIA WILLIAMS
and MARTHA DAVIS,
Movants-Appellants,

v.

REPUBLIC NATIONAL BANK
OF DALLAS,
Defendant-Appellant
Cross-Appellee.

ELLEN JOHNSON,
Plaintiff-Appellee
Cross-Appellant,

v.

REPUBLIC NATIONAL BANK
OF DALLAS,
Defandant-Appellant
Cross-Appellee.

Appeals from the United States District Court for the Northern District of Texas.

January 30, 1984

Before CLARK, Chief Judge, GARZA and POLITZ, Circuit Judges.

CLARK, Chief Judge:

Two decisions by the Supreme Court of the United States handed down after the district court's final judgment significantly altered the pertinent law of this Circuit. These decisions require that we vacate the district court's underlying class certification order. This holding, in turn, necessitates a remand for reconsideration of the more limited class rights that the plaintiffs could properly assert and vacation of the order allowing intervention by persons seeking to assert rights not within the periphery of those limited class claims.

I

A thorough recitation of the facts and procedural history of this massive Title VII class action litigation is available in the published district court opinions. *See* 409 F.Supp. 1083 (N.D.Tex.1976); 78 F.R.D. 352 (N.D.Tex.1978); 82 F.R.D. 420 (N.D.Tex.1979); 505 F.Supp. 224 (N.D.Tex1980); 521 F.Supp. 656 (N.D.Tex.1981). For the reader's convenience, we briefly summarize here the facts necessary for our disposition of the case.

Joan Vuyanich began working as an agent contact clerk in Republic National Bank's Money Order Department on April 29, 1969. She was the only black employee in that department. Shortly after beginning her job, she began having problems with two white female co-workers. She complained to her supervisors, and the situation was temporarily rectified.

On June 29, 1969, Vuyanich married a white male. One month later, her supervisors met her husband. Shortly thereafter, her supervisor told Vuyanich she should resign. The supervisor gave as reasons her clashes with her co-workers, her complaints about her workload, and her not being suitable for the job. When Vuyanich inquired about a transfer, her supervisor replied that she probably did not need a job since her husband was white. Vuyanich was discharged on July 28, 1969.

Less than two weeks later, Vuyanich filed a race discrimination charge against the Bank with the Equal Employment Opportunity Commission. She alleged a violation of Title VII of the Civil Rights Act of 1964, 42 U.S.C. §§ 2000e to 2000e-17. The Commission issued a finding that a reasonable basis existed to believe that a Title VII violation may have occurred. Conciliation efforts were unsuccessful, and the Commission issued a statutory right-to-sue letter. On March 22, 1973, Vuyanich filed suit in the district court.

Ellen Johnson applied at the Bank in September 1971 for a position as a management trainee or in personnel adminis-

tration. After being told that there were no openings in these positions, she asked for any position available. She was not offered a job of any kind. In October 1971, Johnson filed a charge against the Bank with the EEOC asserting race and sex discrimination in several employment practices. The EEOC issued a determination of reasonable cause for most of the allegations. On December 3, 1973, one month after a right-to-sue letter was issued, Johnson filed suit in the district court. The cases were consolidated in 1976.

On March 15, 1978, after a two-day hearing, the district court certified the following class:

> All females of all races and all blacks of either sex; 1) who are or have been employed by the Republic National Bank on or after February 16, 1969, and 2) who applied for employment but were not hired at the Republic National Bank on or after February 16, 1969 to date.

78 F.R.D. at 354. After a second hearing, the court reaffirmed its class composition and divided the class into five subclasses. The district court simultaneously approved three intervenors as additional class representatives. These three intervenors were Marjorie Lee Jackson, Marisu Fenton, and Dorothy Hooks, all female former employees. The five certified subclasses and designated representatives were as follows:

Subclass	Subclass Representative(s)
black and female employees who were exempt from the provisions of the Fair Labor Standards Act	Ellen Johnson Marjorie Lee Jackson
female nonexempt employees	Marisu Fenton
black nonexempt employees	Joan Vuyanich Dorothy Hooks
unsuccessful black and female applicants for exempt positions	Ellen Johnson
unsuccessful black applicants for nonexempt positions	Ellen Johnson

505 F.Supp. at 233 (footnote omitted).

After the liability phase of the trial which lasted twenty-four days, the district court found that the Bank had discriminated against some of the subclasses in certain employment practices for a period of the time alleged. Specifically the court found that the Bank discriminated against (1) black applicants for nonexempt jobs from 1969-1974; (2) female applicants for exempt jobs from 1969-1974; (3) black employees in pay from 1973-1978; (4) black exempt employees in promotion and placement from 1973-1978; (5) black and female nonexempt employees in promotion and placement from 1969-1978; and (6) female employees in maternity leave practices during 1969-1970. The court dismissed the plaintiffs' claims of discrimination in hiring, pay, promotion, placement, maternity leave practices, and terminations.

II

Following Fifth Circuit precedent, the district court relied on the across-the-board theory of class certification. *See* 505 F.Supp. at 234-37. After the district court rendered its decision, however, the Supreme Court, in reversing a panel of this court, ruled that the across-the-board theory is appropriate only in limited instances. *General Telephone Co.* v. *Falcon*, 457 U.S. 147, 102 S.Ct. 2364, 2371 & n. 15, 72 L.Ed.2d 740 (1982), *rev'g* 647 F.2d 633 (5th Cir.1981).

Falcon teaches that an allegation of discrimination neither determines the appropriateness of a class action nor defines the scope of any potential class. 102 S.Ct. at 2371.

> Conceptually, there is a wide gap between (a) an individual's claim that he had been denied a promotion on discriminatory grounds, and his otherwise unsupported allegation that the company has a policy of discrimination, and (b) the existence of a class of persons who have suffered the same injury as that individual, such that the individual's claim and the class claims will share common questions of law or fact and that the individual's claim will be typical of the class claims.

Id. (footnote omitted).

The Court reiterated the rule that the requirements of Rule 23(a) "limit the class claims to those fairly encompassed by the named plaintiff's claims." *Id.* at 2370 (quoting *General Telephone Co.* v. *EEOC*, 446 U.S. 318, 100 S.Ct. 1698, 64 L.Ed.2d 319 (1980). In addition, a class representative must "possess the same interest and suffer the same injury" as the class members. *Schlesinger* v. *Reservists Committee to Stop the War*, 418 U.S. 208, 216, 94 S.Ct. 2925, 2929-30, 41 L.Ed.2d 706 (1974); *see also East Texas Motor Freight System, Inc.* v. *Rodriguez*, 431 U.S. 395, 403, 97 S.Ct. 1891, 1896, 52 L.Ed.2d 453 (1977).

In the present case, Vuyanich and Johnson, who both possessed limited claims, have been permitted to assert class claims that are neither common nor typical of their personal claims. Vuyanich's claims should have been limited to race discrimination in her termination as a nonexempt employee. Her complaint filed with the EEOC contained only these allegations. Yet her complaint in this action alleged on behalf of herself and other blacks and females presently or previously employed, wide ranging claims of sex and race discrimination in, among other areas, placement, compensation, and promotion. Johnson's claims should have been limited to sex discrimination in hiring exempt employees. In her complaint, Johnson alleged sex and race discrimination in hiring. Her class claims, however, alleged only sex discrimination. The district court certified her as a representative of all black and female applicants for both exempt and nonexempt positions and of all black and female exempt employees with promotion, compensation, and transfer claims.

In arguing that *Falcon* did not foreclose all across-the-board class actions, the plaintiffs rely on this language by the Court:

> If petitioner used a biased testing procedure to evaluate both applicants for employment and incumbent employees, a class action on behalf of every applicant, or

> employee who might have been prejudiced by the test clearly would satisfy the commonality and typicality requirements of Rule 23(a). Significant proof that an employer operated under a general policy of discrimination conceivably could justify a class of both applicants and employees if the discrimination manifested itself in hiring and promotion practices in the same general fashion, such as through entirely subjective decisionmaking processes. In this regard it is noteworthy that Title VII prohibits discriminatory employment practices, not an abstract policy of discrimination. The mere fact that an aggrieved private plaintiff is a member of an identifiable class of persons of the same race or national origin is insufficient to establish his standing to litigate on their behalf all possible claims of discrimination against a common employer.

102 S.Ct. at 2371 n. 15. In addition, the plaintiffs cite two post-*Falcon* cases, *Carpenter* v. *Stephen F. Austin University*, 706 F.2d 608 (5th Cir.1983), and *Richardson* v. *Byrd*, 709 F.2d 1016 (5th Cir.), *cert. denied*, —— U.S. ——, 104 S.Ct. 527, 78 L.Ed2d —— (1983), in which across-the-board class actions were upheld on appeal.

Both *Carpenter* and *Byrd* specifically relied on the language from footnote fifteen in *Falcon* to sustain those broad class actions. *Richardson*, 709 F.2d at 1019-20; *Carpenter*, 706 F.2d at 617. Footnote fifteen of *Falcon* observed that if significant proof of a general policy of discrimination was present, it would justify an across-the-board class action. Such proof was not present here. The district court's finding that the Bank relied on two objective inputs — education and experience — in its necessarily subjective hiring process, 505 F.Supp. at 371-72, precludes reliance on this "general policy of discrimination" exception. The district court's class certification must be vacated and

remanded for reconsideration of the proper class in light of *Falcon*.[1]

The district court's across-the-board class certification also implicated the named plaintiffs' standing to assert certain claims. Under principles of standing, the named plaintiffs "must allege and show that they personally have been injured, not that injury has been suffered by other, unidentified members of the class to which they belong and which they purport to represent." *Warth* v. *Seldin*, 422 U.S. 490, 502, 95 S.Ct. 2197, 2207, 45 L.Ed.2d 343 (1975). In *Blum* v. *Yaretsky*, 457 U.S. 991, 102 S.Ct. 2777, 73 L.Ed.2d 534 (1983), also decided after the district court's final decision, the Supreme Court addressed the relationship between standing and class actions. The Court reasoned:

> It is not enough that the conduct of which the plaintiff complains will injure someone. The complaining party must also show that he is within the class of persons who will be concretely affected. Nor does a plaintiff who has been subject to injurious conduct of one kind possess by

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[1]Recent cases from this Circuit that are more similar to the instant case include *Fleming* v. *Travenol Laboratories, Inc.*, 707 F.2d 829 (5th Cir.1983), in which this court affirmed a denial of class certification because the named plaintiff offered only unsupported allegations of discrimination regarding employment practices that had not adversely affected her. *Id. at* 832-33; *see also Wheeler* v. *City of Columbus*, 703 F.2d 853, 855 (5th Cir.1983) ("Discrimination in its broadest sense is the only question alleged that is common to Wheeler and the class she sought to create and represent.") In *Everitt* v. *City of Marshall*, 703 F.2d 207 (5th Cir.), *cert. denied*, —— U.S. ——, 104 S.Ct. 241, 78 L.Ed.2d —— (1983), this court concluded that the named plaintiff's discrimination claims lacked a sufficient nexus with those of the proposed class. The named plaintiff, a former city employee, was covered by civil service regulations different from those of the class she sought to represent. Therefore, the prerequisites of commonality and typicality were not satisfied. 703 F.2d at 210. In addition, the named plaintiff alleged injury as a result of a number of employment practices by which she had not been even arguably affected. *Id.* at 211. Thus, she could not represent those who did allegedly suffer injury from these practices. *Id.*

> virtue of that injury the necessary stake in litigating conduct of another kind, although similar, to which he has not been subject.

Id. at 2784. The named plaintiffs must establish the requisite case or controversy between themselves and the defendants, otherwise "none may seek relief on behalf of himself or any other member of the class." *O'Shea* v. *Littleton*, 414 U.S. 488, 494, 94 S.Ct. 669, 675, 38 L.Ed.2d 674 (1974) (footnote omitted). Because Johnson and Vuyanich can allege injuries only as a result of the Bank's hiring and termination practices, respectively, they lack standing to assert class claims arising from the bank's other employment practices — compensation, promotion, placement, and maternity practices.

The plaintiffs' arguments that their threatened injury arising from these other practices satisfies the standing threshold is unpersuasive. The Supreme Court has stated that a threat of injury must be both " 'real and immediate,' not 'conjectural' or 'hypothetical.' " *Id.*, 94 S.Ct. at 675. There is nothing real or immediate about the possibility that if Johnson had been hired or if Vuyanich had not been terminated, either or both of them might have been subjected to discrimination in compensation, promotion, placement, or maternity benefits. The district court's judgment relating to class claims affecting compensation, promotion, placement, and maternity, as well as race discrimination in hiring, is vacated. Those aspects of the plaintiff's complaints should be dismissed without prejudice to the rights of the putative class for lack of standing.

The class action device has proven a useful tool to secure redress of broad-based grievances in a just, speedy, and inexpensive manner. *Falcon* teaches, however, its efficiency has limits. In today's case, the device was improperly used to multiply two significant but discrete classes of claims involving hiring and termination into a full-scale attack on every employment practice of a major metropolitan bank. This extension of the litigation to claims the named plain-

tiffs could not raise not only violates rudimentary principles of typicality, commonality, and standing but also creates such a legion of claims and defenses that sheer volume tends to obscure the valid rights of the proper classes and such rights as the members of improperly joined classes may be able to assert in another action.

The district court allowed intervention by three female former employees who sought to intervene and assert claims of injury relating to promotion, transfer, compensation, job classification, and job assignment. Since these intervenors had not filed timely charges with the EEOC, they were required to "proceed . . . within the periphery of the issues which [the named plaintiffs] could assert." *Oatis* v. *Crown Zellerbach Corp.*, 398 F.2d 496, 499 (5th Cir.1968). Thus, intervention cannot bootstrap the court's jurisdiction to encompass claims regarding practices broader than the hiring and termination claims properly assertable by the named plaintiffs.

The plaintiffs urge that *Sanchez* v. *Standard Brands, Inc.*, 431 F.2d 455 (5th Cir.1970), supports the allowance of the interventions. *Sanchez* says "the 'scope' of the judicial complaint is limited to the 'scope' of the EEOC investigation which can reasonably be expected to grow out of the charge of discrimination." *Id.* at 466. This reasonable expectation rule requires that the scope of allegations made in a judicial complaint be "like or related" to allegations made in the EEOC charge. *See e.g., Evans* v. *U.S. Pipe & Foundry Co.*, 696 F.2d 925, 928 (11th Cir.1983). Since Vuyanich and Johnson had standing to assert only sex discrimination in hiring or race discrimination in termination, *Oatis* v. *Crown Zellerbach Corp.* is determinative of the impropriety of allowing intervention.

III

To meet the enormous problems of proof presented by the across-the-board class certified here, the district court used a complex multiple regression analysis to construct a "crude"

gauge for testing the plaintiffs' prima facie case of pay, promotion, and placement discrimination. With the classes limited to proper bounds, it should not be necessary to draw upon this same approach in the reconsideration of the limited issues remanded. Thus, there is no need for this court to pass upon the propriety of using this method of proof on the present appeal. The Bank's challenge to the court's findings on maternity leave policies is in the same posture. We pretermit any ruling on that issue also. Finally, we decline to reach plaintiffs' cross-appeal contentions (1) that the district court erred in its rejection of their prima facie proof on phase I liability for pay, promotion, and placement discrimination against exempt females and pay discrimination for non-exempt black employees, and (2) that the district court imposed improper phase II proof burdens on class members when liability was established.

The Bank also challenges the district court's use of statistical proof to test the plaintiffs' claims of hiring discrimination. It contends the court impermissibly used the figures to establish disparate impact rather than disparate treatment, citing *Pouncy v. Prudential Ins. Co.*, 668 F.2d 795 (5th Cir.1982), *Pegues v. Mississippi State Employment Service*, 699 F.2d 760 (5th Cir.), *cert. denied*, ——U.S.——, 104 S.Ct. 482, 78 L.Ed.2d ——(1983), and *Carrol v. Sears Roebuck & Co.*, 708 F.2d 183 (5th Cir.1983). This contention is based on language in the opinion characterizing the case as one of disparate impact, on the rebuttal burden imposed on the Bank, and on the absence of an express finding by the court of intentional discrimination. The plaintiffs respond that the district court correctly applied applied *International Brotherhood of Teamsters v. United States*, 431 U.S. 324, 97 S.Ct. 1843, 52 L.Ed.2d 396 (1977), and that *Pouncy* should not be applied retroactively. They assert the proof shows statistically significant underhiring of blacks and females in comparison to the relevant labor market, a showing that was buttressed by adequate anecdotal evidence. The plaintiffs further assert that the burden assigned to the Bank was no more than that necessary to establish

its affirmative defense that the application of neutral selection criteria caused the deviation. Since the issue is one that could be significant on remand, we hold that *Pouncy* is applicable to this case. Disparate treatment not disparate impact is the proper model for the statistical measurement of discriminatory hiring claims. To the extent that the statistical proof adduced cannot fit into the disparate treatment model, it should not be used on remand.

The judgment appealed from is vacated and the cause is remanded with directions to reconsider the determination of classes to be maintained in accordance with this opinion and to proceed to adjudicate the rights of the parties. Except as limited herein, the court shall have full discretion to determine what part, if any, of the proof previously taken shall be used in determining the rights of the parties and whether to hold additional hearings or take additional proof. The court neither makes nor intimates any view on the merits of any proper claim or defense that may be reasserted on remand.

VACATED and REMANDED.

APPENDIX C

UNITED STATES COURT OF APPEALS
FIFTH CIRCUIT

No. 81-1357

JOAN RANCE VUYANICH,
Plaintiff-Appellee
Cross-Appellant,
and
MARISU FENTON,
Intervenor-Appellee,
MARJORIE LEE JACKSON
and DOROTHY HOOKS,
Intervenors-Appellants,
and
PORTIA WILLIAMS
and MARTHA DAVIS,
Movants-Appellants,

v.

REPUBLIC NATIONAL BANK
OF DALLAS,
Defendant-Appellee
Cross-Appellee.

ELLEN JOHNSON,
Plaintiff-Appellee
Cross-Appellant,

v.

REPUBLIC NATIONAL BANK
OF DALLAS,
Defendant-Appellee
Cross-Appellee.

Appeals from the United States District Court for the Northern District of Texas.

July 12, 1984

ON SUGGESTIONS FOR REHEARING
EN BANC

Before CLARK, Chief Judge, GARZA and POLITZ, Circuit Judges.

PER CURIAM:

Treating the suggestions for rehearing en banc as petitions for panel rehearing, the petitions for panel rehearing are DENIED: The judges in regular active service of this Court having been polled at the request of one of said judges and a majority of said judges not having voted in favor of it (Federal Rules of Appellate Procedure and Local Rule 35), the suggestions for Rehearing En Banc are DENIED.

Before CLARK, Chief Judge, BROWN, GEE, RUBIN, GARZA, REAVLEY, POLITZ, RANDALL, TATE, JOHNSON, WILLIAMS, GARWOOD, JOLLY and DAVIS, Circuit Judges.*

ALVIN B. RUBIN and TATE, Circuit Judges, with whom JOHN R. BROWN, RANDALL and JERRE S. WILLIAMS, Circuit Judges, join, dissenting.

Justice withers on time's vine. These two sex and race discrimination suits, now consolidated, were filed in 1973. Discovery was extensive. The district court wrote five opinions. The trial lasted 28 days. The district court, 78 F.R.D. 352, found, on the merits, in a lengthy and well-reasoned opinion that the Republic National Bank had discriminated against some of its black and female employees. Now, eleven years after the litigation began and fifteen years after the discriminatory practices occurred, it is remanded, not for the error on the merits, but "to reconsider the determination of classes . . . and to proceed to adjudicate the rights of the parties." At 1202. We respectfully dissent from the refusal to grant rehearing en banc both because of the application of hindsight that further delays the conclusion of this ancient case and because we differ with the theory of class certification adopted by the panel.

The Bank has approximately 2,000 employees, of whom about 500 are officers. At the time the EEOC charges were filed, eight percent of the Bank's work force was black but every single one of its officers was white. Fifty-eight percent of the Bank's employees were female, but every one of its officers was male. In 1976, twelve years after Title VII was enacted, only three blacks were officers; although sixty percent of the employees were by then female, only fifty females had become officers, making up ten percent of the officer complement.

Time will soon have erased all but faint memories of the events that occurred fifteen years ago. Before the district court is able to reconsider the case, its decision is again

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* Judge Higginbotham recused.

appealed, and the appeal is heard by yet another panel of this court, two or three more years will have elapsed. By that time many of those originally affected will likely have been succeeded by their heirs. Such delay would be necessary if the trial judge had been in error on the merits, but the merits of his decision are not questioned. Indeed, even the procedural decisions made by the district court carefully followed precedent prevailing at the time they were made.

The panel decision does not end the litigation between the Bank and persons now found to have been included in the class erroneously. The class certification, even if erroneous, tolled the statute of limitations for all persons in the designated class and its subclass. *Barrett v. United States Civil Service Commission*, 439 F.Supp. 216 (D.D.C. 1977); *see also American Pipe and Construction Co. v. Utah*, 414 U.S. 538, 553, 94 S.Ct. 756, 766, 38 L.Ed.2d 713 (1974) ("commencement of the original class action tolls the statute for all *purported* members of the class") (emphasis added). Therefore, the dismissal of all "class claims affecting compensation, promotion, placement, and maternity, as well as race discrimination in hiring," does not terminate those claims. Representatives satisfying even the panel's stringent requirements likely will be found. A new suit will start the legal course.

The fulcrum upon which the panel decision turns is the EEOC complaints filed by the two initial class action plaintiffs: one black woman charged race discrimination, alleging that the Bank refused to transfer and later discharged her because she had married a white man; another black woman charged race and sex discrimination, based upon the Bank's rejection of her applications first for a supervisory and then for any position.

The panel held that the district court's across-the-board theory of class certification had been rejected by the Supreme Court's subsequent decision in *Falcon. General Telephone Company v. Falcon*, 457 U.S. 147, 102 S.Ct. 2364, 72 L.Ed.2d 740 (1982). We submit that the panel expanded *Falcon*

beyond its intended scope. The *Falcon* court specifically indicated, in a footnote quoted by the panel, that, if the same biased employment selection devices affect all members of a putative class, one representative may appropriately advance claims of all those so affected, even though she is not individually affected by some of the particulars of the across-the-board discrimination. 457 U.S. at 159 n. 15, 102 S.Ct. at 2371 n. 15. We have interpreted *Falcon* to hold that "allegations of similar discriminatory employment practices such as a biased testing procedure to evaluate incumbent employees and applicants, or use of entirely subjective personnel processes that operated to discriminate, would satisfy the commonality and typicality requirements of Rule 23(a)." *Carpenter v. Stephen F. Austin State University*, 706 F.2d 608, 617 (5th Cir.1983). In another post-*Falcon* decision, we held that that subjective decision-making might be a "general policy of discrimination" that, in Falcon's words, "could justify a class of both applicants and employees." *Richardson v. Byrd*, 709 F.2d 1016 (5th Cir.), *cert. denied*, ——U.S.——, 104 S.Ct. 527, 78 L.Ed.2d 710 (1983). Such discrimination might manifest "itself in hiring and promotion practices in the same general fashion, such as through entirely subjective decision-making processes." *Id. Cf. Page v. U.S. Industries, Inc.*, 726 F.2d 1038, 1046 (5th Cir.1984) (holding disparate impact analysis applicable to examine the class-wide impact of a "subjective promotional system.").

The panel sought to distinguish *Carpenter* and *Richardson* because in those cases significant proof of subjective discrimination was found, and "such proof was not present here." At 7a. Respectfully, we read the district court opinion differently: the district court said that the Bank had "chosen to rely on two objective inputs into its subjective hiring process as those which exert the greatest influence on its hiring decisions: education . . . and experience." But the district court found that the Bank's selection criteria for hiring were flexible and that it had "no formal degree requirements for any of its jobs." *Vuyanich v. Repub-*

lic National Bank of Dallas, 505 F.Supp. 224, 373 (N.D.Tex. 1980). The district court also found that "the decision to hire a managerial or professional employee is necessarily subjective." *Id.* at 371. Thus, the finding that the Bank relied heavily on the criteria of education and experience does not foreclose the conclusion that the Bank employed a "general policy of discrimination."

We have never required that a plaintiff prove the complete absence of objective criteria to establish the existence of a discriminatory policy. In *Richardson*, we held the *Falcon* exception applicable because transfer and promotion decisions were "based *largely* on subjective factors." 709 F.2d at 1020 (emphasis added). In *Carpenter*, we allowed custodial workers to represent a class that included clerical workers because the same "subjective" employment practices applied to both groups. The "subjective" practices at issue in *Carpenter* were similar to those complained of in this case: supervisors made employment and transfer decisions without any objective criteria beyond a description of the duties, education qualifications, and work experience of the person then holding the position to be filled. 706 F.2d at 614-15, 617.

Moreover, an employer should not be able to stop certification of a class-action discrimination suit in its tracks by simply alleging that hiring is based on "objective" qualifications of "education" and "experience." The court must look at how these professed criteria are actually applied. To take an extreme example, suppose it is a genuine occupational requirement that an applicant have a college degree; fifty white applicants and one hundred black applicants, all with college degrees, apply for fifty positions, but the fifty positions are filled entirely by whites. The "objective" requirement of a college degree does not eliminate the inference that discrimination occurred, an inference that might be rebutted but is not to be defeated by mere allegation.

Here, evidence was adduced and this evidence proved, to the district court's satisfaction, that the low proportion of blacks and women in officer positions did *not* result from education and experience requirements. Even though this evidence was introduced at the trial on the merits, rather than at the time of class certification, we ought not now put on our appellate blinders and ignore it. Had the evidence been proffered before certification, it should have been admissible to determine the propriety of certification.

The panel opinion erases eleven years of litigation to return the litigants to square one. It undermines *Falcon*'s reservation for broad class certification. Law so administered sets litigants into a maze that cannot end with justice.

We respectully dissent.

APPENDIX D

UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF TEXAS
DALLAS DIVISION

JOAN RANCE VUYANICH

v.

REPUBLIC NATIONAL BANK OF DALLAS

CA-3-6982-G

and

CONSOLIDATED WITH

ELLEN JOHNSON

v.

REPUBLIC NATIONAL BANK OF DALLAS

CA-3-7949-G

August 4, 1981

DECREE

This case came on before the Court, sitting without jury, in October and November of 1979, limited to the subject of liability only. That subject having been heard and duly tried, and a Memorandum Order having been filed by the Court on October 22, 1980, it is now Adjudged, Ordered and Decreed as follows:

I.

GENERAL

1. The Defendant, REPUBLIC NATIONAL BANK OF DALLAS, is found to have discriminated in certain respects against subclasses of black and female employees of, and black and female applicants for employment with, the Defendant because of their race or sex in violation of Title VII of the Civil Rights Act of 1964, as amended, 42 U.S.C.

§ 2000e, *et seq.* Defendant is also found not to have discriminated in certain other respects against other subclasses of blacks and females under Title VII.

II.
THE CLASS AND SUBCLASSES

2. This Court has previously certified this action as a class action under Rule 23(b)(2) of the Federal Rules of Civil Procedure. The class of Plaintiffs was divided into the following subclasses pursuant to Rule 23(c)(4)(B) of the Federal Rules of Civil Procedure:

(a) Blacks and females who were exempt employees of the Defendant Bank at any time during the period February 16, 1969 to and including October 14, 1979;

(b) Females who were nonexempt employees of the Defendant Bank at any time during the period February 16, 1969 to and including October 14, 1979;

(c) Blacks who were nonexempt employees of the Defendant Bank at any time during the period February 16, 1969 to and including October 14, 1979;

(d) Blacks and females who applied unsuccessfully for exempt positions at the Defendant Bank during the period February 16, 1969 to and including October 14, 1979;

(e) Blacks who applied unsuccessfully for nonexempt positions during the period February 16, 1969 to and including October 14, 1979; and

(f) Females who applied unsuccessfully for nonexempt positions during the period February 16, 1969 to and including October 14, 1979.

This last subclass, identified in subparagraph (f) above, was decertified by the Court in *Vuyanich* v. *Republic National Bank*, 82 F.R.D. 420, 438 (N.D. Tex. 1979) and its members, therefore, are not subject to the terms of this Decree.

III.
GRANTING AND DENIAL OF CLASS INJUNCTIVE RELIEF

The Court's findings require the granting and denial of injunctive relief as follows:

3. Defendant, its officers, agents, employees, servants and all persons acting in concert or participation with them, are hereby permanently enjoined and restrained from discriminating in the respects described below:

(a) Against female nonexempt employees in initial placement and promotions;

(b) Against black nonexempt employees in initial placement and promotions and in compensation; and

(c) Against black exempt employees in initial placement, promotion and compensation practices.

4. While Defendant is found to have discriminated against certain subclasses of blacks and females, as described below, in the early years covered by this litigation, injunctive relief is denied because the absence of any findings of class discrimination in recent years militates against the present need for such relief. Injunctive relief is denied as to claims of:

(a) Discrimination in hiring against black applicants for nonexempt positions;

(b) Discrimination in hiring against female applicants for exempt positions; and

(c) Discrimination against pregnant female employees who were denied leave for failure to meet a three-year service requirement or who were forced to take pregnancy leave at an arbitrary stage of the pregnancy.

5. Defendant is found not to have discriminated against subclasses of applicants and employees in the following

respects, and therefore the injunctive relief sought is denied as to each:

(a) Black applicants for exempt positions;

(b) Black or female employees alleging involuntary termination by the Defendant;

(c) Female exempt employees alleging discrimination in promotion and initial placement;

(d) Black exempt employees alleging discrimination in promotion and initial placement;

(e) Female exempt and female nonexempt employees alleging discrimination in compensation;

(f) Black exempt and black nonexempt employees alleging discrimination in compensation from 1969-72;

(g) Black and female employees, both exempt and nonexempt, alleging departmental segregation by the Defendant at any time;

(h) Female employees, exempt and nonexempt, alleging discrimination in any of the following respects: (i) pay to employees while on maternity leave; (ii) accrual of seniority on the part of those who have been on maternity leave; (iii) requiring leave for maternity at a fixed time in the pregnancy from January 1, 1971 forward; (iv) imposing a length-of-service requirement for maternity leave from January 1, 1971 forward; and (v) application of a durational limitation for pregnancy leave;

(i) Female or black employees, either exempt or nonexempt, in marriage policy;

(j) Female or black employees, either exempt or nonexempt, in training opportunities or participation in training programs; and

(k) Black or female employees, exempt or nonexempt, in the application or enforcement of any dress requirements.

IV.
APPOINTMENT OF SPECIAL MASTER FOR DETERMINATION OF INDIVIDUAL RELIEF

6. All members of the subclasses as to which a finding of discrimination has been made shall be provided an opportunity to advance individual claims for backpay and priority status in a Stage II proceeding. All such claims shall be determined by reference to a Special Master, who shall be appointed pursuant to Rule 53 of the Federal Rules of Civil Procedure and who shall conduct hearings and make findings in accordance with the guidelines set forth below.

V.
IDENTIFICATION OF ELIGIBLE CLAIMANTS

7. Within sixty (60) days of the entry of this Decree, Defendant shall send a copy of the Notice as set forth in Appendix A, which is hereby incorporated into and made a part of this Decree, to all potential members of subclasses a) through c), as set forth in Paragraph 2 of this Decree, as limited by the identification of potential claims of discrimination in Paragraphs 17(a), 18(a), 19(a) and 21(a) of this Decree, by certified mail, return receipt requested. This Notice shall be accompanied by a copy of the Proof of Claim form as set forth in Appendix B, which is hereby incorporated into and made a part of this Decree.

Upon completion of this mailing, the Defendant shall file with the Court and serve upon the Plaintiffs a certificate of mailing, signed by a duly authorized representative of the Defendant, together with an attached listing of all persons, categorized by subclass, to whom a Notice and Proof of Claim form were mailed.

8. Simultaneously with the mailing of the copies of the Notice as specified in Paragraph 7, above, the Defendant shall cause to be published copies of the Notice and Proof of Claim form in the Legal Notices Section of the following newspapers: *The Dallas Morning News, The Dallas Times*

Herald, The Richardson Daily News, The Garland Daily News, The Oak Cliff Tribune, Fort Worth Star Telegram, and the *Wall Street Journal* (S.W. edition). This publication shall be repeated in each of the above newspapers twice a week for a period of four weeks beginning with and including the initial publication date.

9. To be considered eligible to present a claim for remedial relief pursuant to this Decree, a claimant must fill out a Proof of Claim form, as set forth in Appendix B, and return it to the Master as specified in the Notice (Appendix A) by mail. The envelope containing the Proof of Claim form must be postmarked on or before a date stated in the Notice, which date shall be sixty (60) days after the mailing of the Notice provided for in Paragraph 7, above.

10. Within thirty (30) days after the expiration of the response period specified in Paragraph 9, above, the Master shall file with the Court and serve upon the parties a compilation listing alphabetically the names and addresses of all persons who have responded in timely fashion to the Notice. The Master shall make the claim forms available to the parties for copying or examination. The Master's compilation shall constitute the list of eligible claimants for backpay and other remedial relief in the damages phase (Stage II) of this proceeding. Potential claimants not submitting Proof of Claim as specified in the above paragraphs will be forever barred from relief arising from this litigation.

VI.

SPECIAL MASTER'S PRELIMINARY PROCEEDINGS

11. Within thirty (30) days of the Master's notification as to the timely claimants, the Master shall convene a preliminary hearing to explore the possibilities of settlement and to determine, if necessary, the methods to be employed in the Stage II determinations. The Master's responsibility shall be to seek to place each class member in the economic position he or she would have been absent any discrimination by Defendant as found in the Stage I proceedings.

The Master shall endeavor to make his determination on an individual claimant basis, but may consider utilization of judicially acceptable alternative approaches for the purpose of determining the gross amounts of backpay owing. The Master shall consider proper use of mathematical models, computer-assisted studies and other techniques that will best achieve the goals of efficiency, accuracy and reduced cost; provided, however, that any mathematical technique or model so utilized shall not be used or relied upon to excuse the obligation of each claimant, in order to obtain relief under this Decree, to meet the burdens relevant to his or her claim, as set forth in Paragraphs 17(b), 18(b), 19(b), 20(b) and 21(b) of this Decree, nor shall it operate to deprive the Defendant of an opportunity to rebut such claim in accordance with the provisions of Paragraph 22 of this Decree. The Master may conduct evidentiary hearings and order the discovery he deems appropriate to determine the method to be employed for the Stage II determination and to expedite that determination, provided the methods chosen are consistent with the requirements of this Decree and subject to the supervision of the Court.

12. Within sixty (60) days of the filing and service of the list of eligible claimants specified in Paragraph 10, above, or at such time(s) as the Master shall order, the Defendant shall make available for inspection and copying by the Plaintiffs the complete personnel record or application for employment of each eligible claimant, or both, together with such additional documents necessary to establish the claimant's employment history with the Bank, including the claimant's salary history and record of jobs held or applied for, or both, during the term period relevant to the claimant's claim group. The Master shall be empowered to rule on requests for other records or documents in connection with the hearing of any claimant's claim, subject to the guideline that such requests must be for documents directly related to the establishment or rebuttal of a claim of disparate treatment.

13. (a) At least thirty (30) days before any hearing held to adjudicate the claim of any claimant, the Plaintiffs and the Defendant shall exchange, disclose, or make available for inspection and copying by the other party all documents which each intends to introduce or rely upon in said hearing for the purpose of establishing or rebutting the claimant's claim of discrimination. This requirement shall also apply to the records of interim earnings, employment history and efforts at securing other employment, required to be produced by claimants in accordance with Paragraph 14, below.

(b) The Master may require any additional discovery found to be necessary subject to the guideline set forth in Paragraph 12, above, and subject to the further guideline that any discovery ordered under this Paragraph shall be completed without unnecessary or undue burden to either party and in accordance with time schedules approved by the Master. The Master may disapprove any discovery requests on the ground of relevancy.

VII.
DETERMINATION OF INDIVIDUAL CLAIMS FOR RELIEF

14. Each individual member of a subclass as to which there was a Stage I finding of class discrimination is presumptively entitled to individual relief to the extent necessary to eliminate any discrimination during the periods affecting his or her subclass as found in Stage I determination. Hearings shall be held in accordance with schedules established by the Master, after consultation with counsel for the parties, to determine the claims for relief of each eligible claimant.

15. The Master shall give notice of the scheduled date and time for the hearing to each claimant. Such notice shall also contain or be accompanied by: (a) a description of the provisions of this Decree; (b) the name and telephone number of a person designated by the Master to respond

to any questions that a claimant may have; and (c) a directive to the claimant to supply to counsel for the claimant's subclass at least sixty (60) days prior to the scheduled hearing the following information: (i) all records and documents in his or her possession [or a reconstruction to the best of his or her ability of such records] evidencing interim earnings (earnings, or other income, including unemployment compensation and workers' compensation payments, derived from sources other than Republic National Bank during the period relevant to the claimant's claim) and other benefits (including insurance coverage, profit sharing, pension eligibility or coverage, and other fringe benefits or perquisites such as employer-provided automobiles, employer-paid club memberships, clothing or tool allowances, or employer-provided uniforms) derived from employment by an employer other than Republic National Bank during the period relevant to the claimant's claim; (ii) a record of the claimant's employment history with employers other than Republic National Bank during the period relevant to the claimant's claim; and (iii) if unemployed during any part of the period relevant to the claimant's claim, a record of efforts to secure employment during that time. Willful failure to provide complete records as required pursuant to this Paragraph may result in the dismissal of the individual claimant's request for relief.

16. For purposes of the individual relief afforded by this Decree, the subclasses previously established by the Court shall be further divided into claims groups based upon the employment practice and year involved in the Court's determination for each subclass in its Memorandum Order of October 22, 1980. In any hearing for the resolution of a claimant's claim, the claimant shall have the burden of showing that his or her claim arises out of an event occurring within the time limitations established for his or her claim group. The following paragraphs establish the criteria for each claim group and the requirements for each claimant's proof of membership within that claim group.

17. (a) With respect to claims of discrimination in compensation, persons identified in accordance with Paragraphs 9-10, above, will be divided into the following claim groups:

(i) Blacks who were employed in exempt positions at any time during the period January 1, 1973 to and including October 14, 1979; and

(ii) Blacks who were employed in nonexempt positions at any time during the period January 1, 1973 to and including October 14, 1979.

(b) Membership in the above compensation claim groups requires proof:

(i) That he or she is a black person employed in an exempt or nonexempt position at the Defendant Bank during the relevant period;

(ii) That he or she was paid less than similarly white employees (*i.e.*, similar qualifications and job tenure) for substantially similar work (*i.e.*, work falling within the same job classification, having apparently similar duties and responsibilities, or in the same grade or Hay point level); and

(iii) An estimated factual basis or method for computing the backpay owing to the claimant — *i.e.*, the amount of money claimed that the employee would have earned absent the Bank's discrimination minus the amounts of interim earnings and deductions for the periods when the claimant was out of the workforce voluntarily and for reasons that would have prevented him or her from working at the Bank as well; this proof requirement may change dependent upon the methods followed by the Master in any finding of gross sums due sub-groups.

18. (a) With respect to claims of discrimination in initial placement, persons identified in accordance with Para-

graphs 9-10, above, will be divided into the following claim groups:

(i) Females who were placed at hire in nonexempt positions during the period February 16, 1969 to and including October 14, 1979;

(ii) Blacks who were placed at hire in nonexempt positions during the period February 16, 1969 to and including October 14, 1979; and

(iii) Blacks who were placed at hire in exempt positions during the period January 1, 1973 to and including October 14, 1979.

(b) A claimant in the above initial placement claim groups must further establish:

(i) That he or she falls within the description of one or more of these claim groups;

(ii) That at the time of his or her successful application for employment, he or she applied for or expressed interest in a higher-rated job or job category (*i.e.*, a job or job category having a higher salary range midpoint, a higher grade level or a higher Hay point evaluation) than the job for which he or she was hired;

(iii) That he or she was qualified for the higher-rated job or job category in which he or she expressed interests; and

(iv) The factual basis for computing the backpay or a reasonable estimate thereof owing to the claimant — *i.e.*, the amount of money claimed that the employee would have earned absent the Bank's discrimination minus the amounts of interim earnings and deductions for periods when the claimant was out of the workforce voluntarily and for reasons that would have prevented him or her from working at the Bank as well. This proof requirement may change dependent upon the methods followed by the Master in any findings of gross earnings difference or other generic formulae.

19. (a) With respect to claims of discrimination in promotion, persons identified in accordance with Paragraphs 9-10, above, will be divided into the following claim groups:

(i) Females who were employed in nonexempt positions at any time during the period February 16, 1969 to and including October 14, 1979;

(ii) Blacks who were employed in nonexempt positions at any time during the period February 16, 1969 to and including October 14, 1979; and

(iii) Blacks who were employed in exempt positions at any time during the period January 1, 1973 to and including October 14, 1979.

(b) A claimant in the above promotion claim groups must further establish:

(i) That he or she falls within the description of one or more of these claim groups;

(ii) That he or she applied for or actively sought a promotion from a lower-rated job (*i.e.*, a job having a lower salary range mid-point, lower grade level, or lower Haypoint evaluation) to a higher-rated job, or from the status of a non-officer to the status of an officer (whether or not resulting in an increase in pay), or from the status of a lower-level officer to a higher-level officer, but was not promoted; and

(iii) That he or she was qualified for the higher-rated jobs or status;

(iv) The factual basis for computing the backpay or a reasonable estimate thereof owing to the claimant — *i.e.*, the amount of money claimed that the employee would have earned absent the Bank's discrimination minus the amounts of interim earnings and deductions for periods when the claimant was out of the workforce voluntarily and for reasons that would have prevented him or her from working at the Bank as well. This

proof requirement may change dependent upon the methods by the Master in any findings of gross earnings differences or other generic formulae.

20. (a) With respect to claims of discrimination in hiring, persons identified in accordance with Paragraphs 9-10, above, will be divided into the following claim groups:

(i) Blacks who unsuccessfully applied for non-exempt positions during the period February 16, 1969 to December 31, 1973; and

(ii) Females who unsuccessfully applied for non-exempt positions during the period from February 16, 1969 to December 31, 1974.

(b) A claimant in the above hiring claim groups must further establish:

(i) That he or she falls within the definition of one or more of these claim groups;

(ii) That he or she applied for employment at Republic National Bank and was not hired;

(iii) That he or she was qualified for the position or category of positions for which application was made; and

(iv) The factual basis for computing the backpay or a reasonable estimate thereof owing to the claimant — *i.e.*, the amount of money claimed that the employee would have earned absent the Bank's discrimination minus the amounts of interim earnings and deductions for periods when the claimant was out of the workforce voluntarily and for reasons that would have prevented him or her from working at the Bank as well.

21. (a) With respect to claims of discrimination involving the Defendant's maternity policies and practices, persons identified in accordance with Paragraphs 9-10, above, will

constitute a claim group consisting of females who were employed in both exempt and nonexempt positions during the period February 16, 1969 to and including December 31, 1970, and who were terminated or involuntarily placed on leave of absence during this period because of pregnancy.

(b) A claimant in the above maternity policies and practices claim group must further establish:

(i) That she was a female who was terminated involuntarily or was involuntarily placed on leave of absence from her employment with Republic National Bank during the period February 16, 1969 to and including December 31, 1970; and

(ii) The factual basis for computing the backpay or a reasonable estimate thereof owing to the claimant — *i.e.*, the amount of money claimed that the employee would have earned absent the Bank's discrimination minus the amounts of interim earnings and deductions for periods when the claimant was out of the workforce voluntarily and for reasons that would have prevented her from working at the Bank as well.

22. As to each claimant presenting an individual claim for relief, Defendant may defeat such claim, or some part thereof, at the Stage II hearing by establishing that no discrimination occurred as to that claimant. In so establishing, Defendant may show that there was no vacancy at the time in question; that the claimant was not qualified for the position in question; that the "claimed" position was in fact filled by another minority or female; that the claimant was not better qualified than the person chosen; that similarly situated whites received the same or lower compensation than did claimant; that a pregnant employee's leave of absence or termination was voluntary, predicated on medical advice or consistent with requirements for other disabilities; or any other defense reasonably and legally efficacious to establish the absence of discrimination. Defendant may also defeat or reduce any backpay amount by proof of higher

interim earnings, a willful loss of earnings by the claimant through the absence of due diligence and proof showing how claimant would have performed absent any discrimination, as well as other reasonable and legal defenses to backpay.

23. Upon the completion of the Stage II hearing, the Master shall have the responsibility for determining as to each claimant who prevailed in establishing entitlement to individual relief, the scope of relief, including backpay or priority treatment such as preferential hiring or promotion, or other relief authorized by law and equity, which he finds necessary to remedy the discrimination. The Master shall prepare his findings in a Report and submit same to the parties and the Court. The Report shall specify the precise amounts of backpay owed to each individual and set forth the computation used to arrive at same. It shall also specify the nature of any other relief, explain the circumstances underlying the discrimination found, and set forth the applicable dates and the precise relief ordered. In making his findings the Master shall adhere to the following guidelines:

(a) A cutoff date for the computation of monetary and other individual relief shall be October 14, 1979;

(b) Monetary or other relief to individual claimants shall be computed from the first discriminatory incident found by the Master affecting that claimant after February 16, 1969;

(c) In determining the award of backpay, the Master shall not be expected to seek unrealistic exactitude, but should strive to ascertain that no undue windfall inure to either the discriminating or discriminated parties

(d) Where more than one claimant is eligible for a single vacancy, the Master must assure that no backpay or priority award be granted to require Defendant to remedy more than the one vacancy;

(e) No liability of any kind can be attached for the time period subsequent to a claimant's termination, either voluntary or involuntary, from Defendant's employ;

(f) Probative evidence of historical work patterns among Defendant's workforce may be applied to recreate the employment situation as much as possible as it would have been absent any discrimination;

(g) No claimant who is a member of more than one subclass may obtain relief for more than one subclass for the same time period; and

(h) All backpay awards shall be subject to the computation of interest on net amounts due, based on the then-prevailing legal rate of interest, in accordance with the provisions of 28 U.S.C. § 1961.

24. Within forty-five (45) days of the Master's submission of his Report, the parties may file Exceptions to same with the Court. The Court will issue its Order approving, rejecting or modifying the Report, and setting forth any additional requirements necessary to effectuate the appropriate remedies to its Order.

25. This Court will retain jurisdiction over this action for the purposes of effectuating the terms of this Order until further Order.

/s/ PATRICK E. HIGGINBOTHAM

PATRICK E. HIGGINBOTHAM
United States District Judge

APPENDIX "A"

NOTICE TO CLASS

To: Black and Female persons who were employees of Republic National Bank of Dallas at any time during the period February 16, 1969 to and including October 14, 1979, and Blacks and Females who unsuccessfully applied for employment at Republic National Bank of Dallas during the period February 16, 1969 to and including December 31, 1974.

NOTICE OF YOUR RIGHTS IN LAWSUIT AND OF THE CHOICES YOU MUST MAKE TO PROTECT YOUR RIGHTS

PLEASE TAKE NOTICE that there is now pending in the United States District Court for the Northern District of Texas a civil action concerning discrimination in employment by the Republic National Bank of Dallas ("Bank") against blacks and females, titled "Vuyanich v. Republic National Bank of Dallas", Nos. CA-3-6982-G and CA-3-7949-G. On October 22, 1980, the United States District Court ("the court"), the HONORABLE PATRICK E. HIGGINBOTHAM, Judge, issued a Memorandum Order finding the Bank had discriminated in some years in the hiring for some positions of some blacks (1969-1973) and females (1969-1974), in the placement and promotion of blacks and females, in the compensation of blacks (1973-1979) and in maternity practices affecting some women in 1969-1970. On ..... , the Court issued a Decree which provides that all members of the above groups shall be provided an opportunity to advance individual claims for monetary relief and priority treatment in employment matters.

Please note that a claim of discrimination will not be entitled to consideration unless it falls within one of the following categories:

A. If you claim discrimination in *compensation*, (*i.e.*, if you are a black person, that you were paid less than whites performing substantially similar work to the

work you were performing, because of your race), your claim will not be considered unless you are a black person who was employed in an *exempt* or *nonexempt* position at the Bank at any time during the period January 1, 1973 to and including October 14, 1979.

B. If you claim discrimination in *initial job placement* (*i.e.*, that you were hired by the Bank but were placed in a lower-paying job than one you expressed interest in and were qualified for, and that this placement occurred because of your race or sex) or in *promotional opportunity* (*i.e.*, that you sought a promotion to a higher-paying job but were denied the promotion because of your race or sex), your claim will not be considered unless:

1. You are a *female* person or a *black* person employed in a *nonexempt* job at the Bank at any time during the period February 16, 1969 to and including October 14, 1979; or

2. You are a *black* person employed in an *exempt* job at the Bank at any time during the period January 1, 1973 to and including October 14, 1979.

C. If you claim discrimination in *hiring* (*i.e.*, that you applied for employment at the Bank but were not hired because of your race or sex), your claim will not be considered unless:

1. You are a *female* person who applied unsuccessfully for an *exempt* (professional, higher level administrative, or executive position during the period February 16, 1969 to and including December 31, 1974; or

2. You are a *black* person who applied unsuccessfully for a *nonexempt* (other than exempt) job during the period February 16, 1969 to and including December 31, 1973.

D. If you claim discrimination in *maternity practices*, (*i.e.*, that you were terminated or placed on involuntary leave of absence from your job at the Bank because of

pregnancy), your claim will not be considered unless you are a *female* person who was terminated or placed on involuntary leave of absence because of pregnancy during the period February 16, 1969 to and including December 31, 1970.

The purpose of this notice is to inform you that if you are a member of one of the above groups, you may have a claim for relief. However, you must act now to inform the Court that you believe you are entitled to the relief to be ordered in this case and that you want your claim for relief to be considered at this time. Failure to notify the Court of your claim for relief at this time will forever bar you from seeking such relief in the future for past employment discrimination by the Bank.

In its Decree, the Court has stated that injunctive relief will be available to some members of these groups to give them a priority status in terms of future employment decisions. The Court also ordered that further proceedings be held to determine the availability and amount of any backpay which may be necessary to compensate any member of any of the groups who has been harmed by the Bank's practices. If you are a member of one or more of these groups, and you want the Court to determine what, if any, relief you are entitled to in this litigation, you *must* fill out the accompanying Proof of Claim form completely, or copy the form on a clean sheet of paper, complete it and mail it to:

....., Special Master
United States District Court for
The Northern District of Texas
United States Federal Courthouse
1100 Commerce Street
Dallas, Texas 75202

It must be postmarked no later than .....
You may obtain a Proof of Claim form and a copy of this Notice by writing to the above person and address.

Every person who submits a Proof of Claim form will be required to appear and prove his or her claim by appropriate testimony and evidence and to prove what efforts he or she has taken to mitigate his or her damages, if any. Failure to submit a completed Proof of Claim form by .... will forever bar you from seeking any relief upon a claim which this Court could have decided at the proceedings which will be held pursuant to its ..... Decree.

If you have any questions (such as whether you are affected by this litigation), please address a postal card or letter to the Special Master, Mr. ..... at the above address. He will contact you and refer you to plaintiffs' attorneys for a further explanation and legal advice.

PATRICK E. HIGGINBOTHAM
United States District Judge

APPENDIX "B"

PROOF OF CLAIM FORM

Instructions:

(A) The United States District Court for the Northern District of Texas, the HONORABLE PATRICK E. HIGGINBOTHAM, Judge, issued a Decree on _____, ordering that persons to whom the Republic National Bank of Dallas ("Bank") had been found liable for employment discrimination be given an opportunity to present their individual claims for monetary and other relief.

(B) The groups for whom liability was found are named in the "NOTICE TO CLASS" which accompanies this Proof of Claim form. If you do not have a copy of this Notice, please write and request one from:

_____, Special Master
United States District Court for
The Northern District of Texas
United States Federal Courthouse
1100 Commerce Street
Dallas, Texas 75202

(C) In accordance with the Decree of _____, if you are a member of any one of the groups named in that Notice and wish to seek a claim for monetary or other relief, you *must* complete this Proof of Claim and mail it to _____ at the above address, postmarked no later than _____. If you do not fill out this form completely and mail it to _____ by the above date, you will be forever barred from seeking any relief for past employment discrimination by the Bank.

(D) Please read the accompanying "NOTICE TO CLASS" carefully before completing this form. Any questions regarding this Proof of Claim form or the Notice should be sent to _____ at the above address.

(E) All persons must sign and mail this form to _____ at the above address by _____.

1. Name of Claimant _____
(Last) (First) (Middle)

2. Address _____
(Street) (City) (State) (Zip)

3. Race (Circle One) (Black) (White) (Other)

4. Sex (Circle One) (M) (F)

5. It is my sincere belief that Republic National Bank discriminated against me on the basis of my (race) (sex) [cross out inapplicable word, unless you are claiming discrimination based on *both* race and sex].

6. It is my sincere belief that Republic National Bank discriminated against me by (circle appropriate letter(s)):
   a. Failing to hire me when I applied;
   b. Placing me in a job lower than the type of job I applied for and was qualified for;
   c. Failing to promote me;
   d. (For blacks only). Failing to pay me as much as whites doing substantially similar work;
   e. (For women only). Terminating my employment because of pregnancy.

7. Approximate date(s) of the discrimination practiced against me: _____

8. [In your own words, please describe how you believe you were discriminated against by Republic National Bank]:

_____

_____

_____

_____

_____

9. Please provide your name at the time you applied or were employed by the Bank if it has changed since then:

_____

(Last) (First) (Middle)

I hereby certify that I have a *bona fide* claim of discrimination against Republic National Bank, as a remedy for which I claim entitlement to backpay and other remedial relief.

_____

Signature of Claimant

_____

Date

APPENDIX E

UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF TEXAS
DALLAS DIVISION

JOAN RANCE VUYANICH

v.

REPUBLIC NATIONAL BANK OF DALLAS

CA-3-6982-G

and

CONSOLIDATED WITH

ELLEN JOHNSON

v.

REPUBLIC NATIONAL BANK OF DALLAS

CA-3-7949-G

October 22, 1980

MEMORANDUM ORDER

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UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF TEXAS
DALLAS DIVISION

JOAN RANCE VUYANICH

v.

REPUBLIC NATIONAL BANK OF DALLAS

CA-3-6982-G

and

CONSOLIDATED WITH

ELLEN JOHNSON

v.

CA-3-7949-G

REPUBLIC NATIONAL BANK OF DALLAS

October 22, 1980

MEMORANDUM ORDER

This order constitutes the court's findings of fact and conclusions of law entered after a five-week trial to the court on the Phase I liability issues of a class action race and sex discrimination case under Title VII of the Civil Rights Act of 1964, 42 U.S.C. §§ 2000e *et seq.* ("Title VII").[1] For the sake of clarity, and so that this opinion may stand as a self-contained unit, the facts and procedural history of the case will be set forth in full.

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[1]This action has been the subject of three prior published opinions: *Vuyanich* v. *Republic National Bank*, 409 F.Supp. 1083 (N.D. Tex. 1976); *Vuyanich* v. *Republic National Bank*, 78 F.R.D. 352 (N.D. Tex. 1978); *Vuyanich* v. *Republic National Bank*, 82 F.R.D. 420 (N.D. Tex. 1979).

I. *History of the Case*

Plaintiff Joan Rance Vuyanich, a black female, was first employed with defendant Republic National Bank ("the Bank" or "Republic") on April 28, 1969, as an agent contact clerk in the Money Order Department. She was then the only black employee of her department. Soon after her arrival, she began to have problems with two white female co-workers, whom Ms. Vuyanich believed to be shouldering less than a fair share of the workload. Complaints to her supervisor resulted (in her view) in only temporary improvement. On June 29, 1969, Ms. Vuyanich married a white male whom she had met during previous employment. Her supervisors first met her new husband approximately one month later. A few days after this introduction, Ms. Vuyanich was called to her supervisor's office and told that there was a clash of personalities between herself and her co-workers, that the complaints about the workload were her fault, that she was not suitable for the job, and that she should resign. When asked about a transfer, her supervisor replied that Ms. Vuyanich probably did not need a job any more since her husband was white.[2] Ms. Vuyanich was discharged from the Bank on July 28, 1969.

On August 13, 1969, Ms. Vuyanich filed a charge against the Bank with the Austin Regional Office of the Equal Employment Opportunity Commission ("EEOC"), setting forth the above events and charging the Bank with violation of Title VII. On May 23, 1972, the Dallas District Director of the EEOC issued his findings of fact, in which he found, *inter alia*, that Vuyanich's supervisor had discharged her instead of taking other steps to resolve the racially motivated personality conflict between her and her co-workers. A determination of reasonable cause to believe that a violation of Title VII had occurred was issued on

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[2]Another supervisor had previously told Ms. Vuyanich that "the world was not ready for mixed marriages." A third supervisor, however, on being told of Vuyanich's impending marriage, had stated "if that's what you want to do, do it."

November 6, 1972. Conciliation efforts were unsuccessful, and on March 6, 1973, the EEOC issued a statutory right-to-sue letter. On March 22, 1973, three years and eight months after her discharge, Ms. Vuyanich filed the first of these two consolidated actions.

Plaintiff Ellen Johnson, a black female, applied for a job at the Bank on September 23, 1971. Ms. Johnson was a 1971 graduate of the University of Texas at Arlington with a major in government. She first applied for a position as a management trainee or in personnel administration, but was told that no such positions were available. She then expressed her willingness to accept any position available; she was not offered a position of any kind.[3]

On October 15, 1971, Ms. Johnson filed a discrimination charge with the Dallas District Office of the EEOC. This charge alleged across-the-board race and sex discrimination by the Bank with respect to hiring, recruiting, job requirements, training, promotion, and personnel rules. On August 14, 1973, the District Director issued a determination of reasonable cause with respect to most of these allegations. On November 1, 1973, the EEOC issued a right-to-sue letter, and on December 3, 1973, the second of the present actions was filed.

The procedural history of these cases is complex, the *Vuyanich* case having been assigned at one time or another to five different judges of this court. The first significant event in the cases took place on November 7, 1974, when Judge Mahon conditionally certified the *Vuyanich* case as a class action on behalf of female and black employees and potential employees of the Bank who were adversely affected by the practices alleged by Ms. Vuyanich. Except for sporadic discovery activities, the cases remained dormant until March 12, 1976. On that date, Judge Mahon consolidated the *Vuyanich* and *Johnson* cases for discovery purposes. Judge Mahon also granted plaintiffs' motions to

[3]Ms. Johnson was turned down the same day at two other leading Dallas banks.

strike the Bank's jury demand, basing his decision on *Curtis* v. *Loether*, 415 U.S. 189 (1974), and *Johnson* v. *Georgia Highway Express, Inc.*, 417 F.2d 1122 (5th Cir. 1969). At the same time, he denied the Bank's motion to strike Ms. Vuyanich's allegations of sex discrimination, holding her EEOC charge sufficient under *Sanchez* v. *Standard Brands, Inc.*, 431 F.2d 455 (5th Cir. 1970), and *Gamble* v. *Birmingham Southern Railroad*, 514 F.2d 678 (5th Cir. 1975), to support claims both of race and sex discrimination. *Vuyanich*, *supra* n.1, 409 F.Supp. at 1086-90.

On March 15, 1978, the cases having been transferred to the present judge, the class status of the cases was updated and redefined. Based on statistical evidence presented at a two-day hearing, the court certified a class consisting of:

> All females of all races and all blacks of either sex; 1) who are or have been employed by the Republic National Bank on or after February 16, 1969, and 2) who applied for employment but were not hired at the Republic National Bank on or after February 16, 1969 to date.

Vuyanich, *supra* n.1, 78 F.R.D. at 354.[4] At the same time, the court consolidated the cases for all purposes. Trial of the so-called "Phase I liability" issues, *see Swint* v. *Pullman-Standard, Inc.*, 539 F.2d 77, 94 (5th Cir. 1976); *Baxter* v. *Savannah Sugar Refining Corp.*, 495 F.2d 437, 443-44 (5th Cir. 1974), *cert. denied*, 419 U.S. 1033 (1975), was severed from trial of individual damage issues.

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[4]February 16, 1969, is the date 180 days prior to the filing of the Vuyanich claim with the EEOC. Employees who left the Bank prior to that date may not take advantage of the Vuyanich filing, and hence are time-barred from asserting their claims. *See In re Consolidated Pretrial Proceedings*, 582 F.2d 1142, 1149 (7th Cir. 1978), *cert. deferred sub nom. Zipes* v. *Trans-World Airlines, Inc.* and *Trans-World Airlines, Inc.* v. *Zipes*, 442 U.S. 916 (1979); *Laffey* v. *Northwest Airlines, Inc.*, 567 F.2d 429, 472-74 (D.C. Cir. 1976,) *cert. denied*, 434 U.S. 1086 (1978); *Wetzel* v. *Liberty Mutual Insurance Co.*, 508 F.2d 239, 246 (3d Cir.), *cert. denied*, 421 U.S. 1011 (1975).

In early 1979, the court conducted a further hearing for the purpose of refining the class definition. Both sides presented sophisticated statistical analyses in support of their respective positions. On April 25, 1979, the court reaffirmed its earlier class certification order, dividing the original class into five subclasses.[5] The court simultaneously approved requests for designation of three class members as additional class representatives. These three new class representatives have been referred to as intervenors.[6]

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[5]A sixth potential subclass, that of unsuccessful female applicants for nonexempt positions, was decertified due to a lack of commonality, in light of the insufficient evidence of discrimination against that group. *Vuyanich, supra* n.1, 82 F.R.D. at 438.

[6]A description of the intervenors and their respective claims was contained in the court's earlier opinion:

> Marjorie Lee Jackson was employed by the Bank as an exempt employee from September 13, 1971 until October 9, 1973. She worked in Estate Administration as an administrative assistant. She testified that she was the only female holding such a position at the Bank. She further testified that although she had greater responsibility than the men holding the same position, she believes that she was paid less. She stated that although officers came from the ranks of administrative assistants in her department, she was not promoted. Jackson further testified that she requested transfer into a trust new business position but was informed by a male bank officer that he did not expect to have to hire women into such positions for at least five years.
>
> * * *
>
> Marisu Fenton worked for the Bank from May 22, 1972 until August 3, 1973. She complains of discrimination in job classification, training, promotion, transfer, compensation, working conditions, and job content. Although she had a degree in business administration and graduated in the top 10% of her class, she was hired as a nonexempt employee. She testified that many other educated and qualified women were in comparable positions. She further testified that even though the evaluations she received from her superiors were consistently favorable, she never received any training which would have enabled her to move into management. Nor did she receive a promotion that resulted in an increase in salary. Although Fenton was a nonexempt employee, she testified that the Bank kept no records of the hours she worked and did not pay her overtime when she worked more than 40 hours a week.
>
> * * *

The five certified subclasses are as follows:

Subclass	Subclass Representative(s)	Subclass Attorney(s)
black and female exempt employees	Ellen Johnson Marjorie Lee Jackson	Linda Coffee with Joann Peters
female nonexempt employees[7]	Marisu Fenton	Richard Arnold
black nonexempt employees[7]	Joan Vuyanich Dorothy Hooks	Joann Peters and Linda Coffee
unsuccessful black applicants for exempt positions	Ellen Johnson	Linda Coffee with Joann Peters
unsuccessful black applicants for nonexempt positions	Ellen Johnson	Linda Coffee with Joann Peters

---

Dorothy Hooks was employed by the Bank from 1963 until 1970. She complains of race discrimination in pay, promotion, training, transfer, job assignment and classification and job content. Specifically, she alleges that she, like Vuyanich, was confined to Money Orders away from the public. During the seven years that she was at the Bank, she worked her way up through various positions in Money Orders, but observed many white employees move at a more rapid pace. Before she became a supervisor, she was required to train several white males for supervisory positions. After Hooks complained, she was promoted to supervisor. She testified that white males holding comparable positions were paid more than she was. When a different white male became the head of Money Orders, Hooks testified that he took away her supervisory authority, and then would not allow her to transfer. She asserts that as a result of these racist practices, she was constructively discharged.

Vuyanich, supra n.1, 82 F.R.D. at 439-40.

[7]Black females in nonexempt positions are members of both of the indicated subclasses. To the extent these individuals assert sex discrimination, they are treated as members of the female nonexempt employee subclass; to the extent that their claims involve race discrimination, they are members of the black nonexempt employee subclass. Likewise, black females who unsuccessfully

The employee subclasses include employees who have worked for the Bank during the period from February 16, 1969, to the date of trial. The applicant subclasses include those who applied for positions at the Bank during the period from February 16, 1969, to the date of trial.[8]

The Phase I trial commenced on October 15, 1979. In the course of 24 days of testimony, the court heard from over three dozen witnesses and received thousands of exhibits into evidence. Ten of these witnesses were experts in the fields of computer science, statistics, business, or economics.[9] The testimony of these experts, together with their written reports, forms the evidentiary base for the statistical analyses at the heart of plaintiffs' case and the Bank's rebuttal of that case.

II. *Class Reevaluation*

Before turning to substantive issues, we deal with post-trial challenges by the Bank to the status of this case as a class action. Although the issues of class certification have

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applied for nonexempt positions may assert race discrimination claims (but not sex discrimination claims) as members of the fifth subclass. Discrimination on account of an individual's status as a black female constitutes both sex and race discrimination. *See Jeffries* v. *Harris County Community Action Association*, 615 F.2d 1025 (5th Cir. 1980).

[8]The applicant subclasses were originally certified to run from April 16, 1971, 180 days prior to Ellen Johnson's EEOC charge. On September 7, 1979, the court expanded these subclasses, at least for phase one purposes, to run from February 16, 1969, relying on *Satterwhite* v. *City of Greenville*, 578 F.2d 987, 994 n.8 (5th Cir. 1978), *vacated*, 100 S.Ct. 1334 (1980); *Sanchez* v. *Standard Brands, Inc.*, *supra*; and *Oatis* v. *Crown-Zellerbach Corp.*, 398 F.2d 496, 499 (5th Cir. 1968), in holding that the applicant subclasses could take advantage of the earlier EEOC charge filed by Joan Vuyanich.

[9]On October 16, 1979, the court appointed itself a special master to take the testimony of Dr. Francine Blau in Champaign, Illinois. To the extent that this opinion relies on the testimony of Dr. Blau, it constitutes the court's report in its capacity as special master, and is hereby adopted as such. *See* Fed. R. Civ. P. 53(e)(1) and 53(e)(2).

already been considered repeatedly and exhaustively, *see* n.1, *supra*, the court has a continuing duty to reevaluate class status on the basis of events which transpire and circumstances which develop as the litigation unfolds. *E.g.*, *Guerine* v. *J & W Investment, Inc.*, 544 F.2d 863, 864 (5th Cir. 1977); *Cooper* v. *University of Texas*, 482 F.Supp. 187, 190 (N.D. Tex. 1979), *appeal docketed*, No. 80-1412 (5th Cir. Apr. 15, 1980). This reevaluation process is complex, and will be discussed in detail in due course. The spokes of all the Bank's challenges to the class as it is now structured run in the final analysis to a central hub. That hub is an attack on the maintainability of so-called "across-the-board" suits. We turn then to their role in the evolving framework of Title VII class action litigation.

A. *"Across-the-Board" Suits.*

The concept of an "across-the-board" class action, *i.e.*, an action challenging a wide range of employment practices alleged to result from a common discriminatory animus, owes its origin to *Johnson* v. *Georgia Highway Express, Inc.*, 417 F.2d 1122 (5th Cir. 1969). The Fifth Circuit in *Johnson* reversed a ruling by the trial court that a discharged black employee could only represent other discharged black employees. The court found such a limitation to be error "as it is clear from the pleadings that the scope of appellant's suit is an 'across-the-board' attack on unequal employment practices alleged to have been committed by the appellee pursuant to its policy of racial discrimination." 417 F.2d at 1124. Noting the "Damoclean threat of a racially discriminatory policy," *Hall* v. *Werthan Bag Corp.*, 251 F.Supp. 184, 186 (N.D. Tenn. 1966), hanging over the entire racial group, the court held that the plaintiff could represent all black employees of the defendant in their claims of alleged discrimination in hiring, firing, promotion, and maintenance of facilities. 417 F.2d at 1124.

The *Johnson* decision received continued support in Fifth Circuit Title VII jurisprudence. Thus in *Carr* v. *Conoco Plastics, Inc.*, 423 F.2d 57 (5th Cir.), *cert. denied*, 400 U.S.

951 (1970), a group of black employees was permitted to maintain an "across-the-board" suit challenging hiring and internal personnel policies. In *Jack* v. *Linen Supply Co.*, 498 F.2d 122 (5th Cir. 1974), the court held that a former employee could properly represent a class of present and future employees. Similarly, in *Long* v. *Sapp*, 502 F.2d 34 (5th Cir. 1974), the court, reaffirming *Johnson*, held that a terminated employee could challenge racially discriminatory policies allegedly "pervad[ing] all aspects of the employment practices of" her former employer:

> Having shown herself to be a black and a former employee . . . she occupies the position of one she says is suffering from the alleged discrimination. She has demonstrated the necessary nexus with the proposed class for membership therein. As a person aggrieved, she can represent other victims of the same policies, whether or not all have experienced discrimination in the same way.

502 F.2d at 43.

The Fifth Circuit approach, characterized as "pioneering," *Worley* v. *Western Electric Co.*, 22 Empl. Prac. Dec. ¶ 30,600, at 14,224-25 (N.D. Ga. 1979), received widespread but not universal support in other circuits. The "across-the-board" approach was recognized and approved by the Third Circuit, *Wetzel* v. *Liberty Mutual Insurance Co.*, 508 F.2d 239, 247 (3d Cir.), *cert. denied*, 421 U.S. 1011 (1975), the Fourth Circuit, *Barnett* v. *W. T. Grant Co.*, 518 F.2d 543, 547-48 (4th Cir. 1975), the Sixth Circuit, *Senter* v. *General Motors Corp.*, 532 F.2d 511, 523-24 (6th Cir.), *cert. denied*, 429 U.S. 870 (1976); *Tipler* v. *E. I. duPont deNemours & Co.*, 443 F.2d 125, 130 (6th Cir. 1971); the Eighth Circuit, *Donaldson* v. *Pillsbury Co.*, 554 F.2d 825, 829-32 (8th Cir.), *cert. denied*, 434 U.S. 856 (1976); *Reed* v. *Arlington Hotel Co.*, 476 F.2d 721, 722-73 (8th Cir.), *cert. denied*, 414 U.S. 854 (1973); *Parham* v. *Southwestern Bell Telephone Co.*, 433 F.2d 421, 425 (8th Cir. 1970); and a variety of district courts, *e.g.*, *Mack* v. *General Electric Co.*, 329 F.Supp. 72,

75-76 (E.D. Pa. 1971); *Wilson* v. *Monsanto Co.*, 315 F.Supp. 977, 979 (E.D. La. 1970); *see Hall* v. *Werthan Bag Corp.*, *supra* ("across-the-board" action as to injunctive relief but not as to back pay). *See generally Developments in the Law — Employment Discrimination and Title VII of the Civil Rights Act of 1964*, 84 Harv. L. Rev. 1109, 1219-21 (1971). The "across-the-board" approach was rejected in the Tenth Circuit, *Taylor* v. *Safeway Stores, Inc.*, 524 F.2d 263, 270-71 (10th Cir. 1975), and by a number of district courts, *e.g.*, *Tolbert* v. *Daniel Construction Co.*, 332 F.Supp. 772, 775 (D.S.C. 1971); *White* v. *Gates Rubber Co.*, 53 F.R.D. 412, 413 (D. Cclo. 1971); *Hyatt* v. *United Aircraft Corp.*, 50 F.R.D. 242, 245-47 (D. Conn. 1970); *Burney* v. *North American Rockwell Corp.*, 302 F.Supp. 86, 90-91 (C.D. Cal. 1969); *Colbert* v. *H-K Corp.*, 295 F.Supp. 1091, 1093 (N.D. Ga. 1968), *vacated on other grounds*, 444 F.2d 1381 (5th Cir. 1971).

The continuing propriety of "across-the-board" class actions under Title VII was called into question in 1977 by *East Texas Motor Freight Systems, Inc.* v. *Rodriguez*, 431 U.S. 395 (1977). In that case, the district court had denied certification of an "across-the-board" suit, and had rejected the named plaintiffs' claims on their merits after trial. The Fifth Circuit reversed, certifying a class, and itself found classwide liability on the basis of the trial record. The Supreme Court in turn reversed the court of appeals, holding, based upon the failure of the named plaintiffs' claims, their failure to move for class certification, and their conflicts of interest with members of the class, that the named plaintiffs were not proper class representatives. In this regard, the Court stated:

> We are not unaware that suits alleging racial or ethnic discrimination are often by their very nature class suits, involving classwide wrongs. Common questions of law or fact are typically present. But careful attention to the requirements of Fed. Rule Civ. Proc. 23 remain nonetheless indispensable. The mere fact that a complaint alleges racial or ethnic discrimination does not

> in itself ensure the party who has brought the lawsuit will be an adequate representative of those who may have been the real victims of that discrimination.

431 U.S. at 405-06. Citing *Schlesinger* v. *Reservists Committee to Stop the War*, 418 U.S. 208, 216 (1974), the Court noted that "a class representative must be part of the class and 'possess the same interests and suffer the same injury' as the class members." 431 U.S. at 403.

Mirroring the pre-*Rodriguez* dissension among the circuits, courts are divided on the question of whether "across-the-board" suits survive *Rodriguez*. In *Payne* v. *Travenol Laboratories, Inc.*, 565 F.2d 895, 900 (5th Cir.), *cert. denied*, 439 U.S. 835 (1978), the Fifth Circuit, without discussing *Rodriguez*, stated:

> Plaintiffs' action is an "across-the-board" attack on unequal employment practices alleged to have been committed by Travenol pursuant to a policy of racial discrimination. As parties who have allegedly been aggrieved by some of those discriminatory practices, plaintiffs have demonstrated a sufficient nexus to enable them to represent other class members suffering from different practices motivated by the same policies.

In *Satterwhite* v. *City of Greenville*, *supra* n.7, the court again stated:

> Nor is *Rodriguez* or this opinion contrary to the policy favoring "across-the-board" Title VII class actions. *See Johnson* v. *Ga. Highway Express*, *supra*. It is not necessary that the representative suffer discrimination in the same way as other class members, but it is necessary that she suffer from the discrimination in some respect.

578 F.2d at 993-94 n.8. Finally, in *Falcon* v. *General Telephone Co.*, No. 78-3587 (5th Cir. Sept. 22, 1980), the court settled any remaining doubt, holding squarely that "an employee complaining of one employment practice [may] represent another complaining of another practice, if the

plaintiff and the members of the class suffer from essentially the same injury." The Fourth Circuit has reached a contrary result, *Hill* v. *Western Electric Co.*, 596 F.2d 99 (4th Cir.), *cert. denied*, 444 U.S. 929 (1979); *see Vuyanich*, *supra* n.1, 82 F.R.D. at 433 n.8, and district courts are split on the issue.[10]

The *Payne*, *Satterwhite* and *Falcon* cases are controlling precedent in this circuit for the proposition that "across-the-board" suits remain appropriate in proper circumstances notwithstanding *Rodriguez*. Even were the slate clean, however, the factors favoring "across-the-board" suits identified by this court in its earlier order, *see Vuyanich*, *supra* n.1, 82 F.R.D. at 432-33, would remain cogent today. The funda-

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[10] *Compare Bartelson* v. *Dean Witter & Co.*, 23 Empl. Prac. Dec. ¶ 30,962 (E.D. Pa. 1980); *Quigley v. Braniff Airways, Inc.*, 85 F.R.D. 74, 78-79, 83 (N.D. Tex. 1979); *Beasley* v. *Griffin*, 81 F.R.D. 114, 116-17 (D. Mass. 1979); *Wajda* v. *Penn Mutual Life Ins. Co.*, 80 F.R.D. 303, 307-09 (E.D. Pa. 1978); *Parker v. Bell Helicopter Co.*, 78 F.R.D. 507, 513-14 (N.D. Tex. 1978); *Arnett* v. *American National Red Cross*, 78 F.R.D. 73, 77 n.6 (D.D.C. 1978); *Adams* v. *Jefferson Davis Parish School Board*, 76 F.R.D. 621, 623 (W.D. La. 1977); *Dickerson* v. *United States Steel Corp.*, 439 F.Supp. 55, 61-62 (E.D. Pa. 1977), *vacated on other grounds sub nom. Worthy* v. *United States Steel Corp.*, 616 F.2d 698 (3d Cir. 1980) ("across-the-board" suits survive *Rodriguez with Local 194, Retail Wholesale and Department Store Union* v. *Standard Brands, Inc.* 85 F.R.D. 599, 605 (N.D. Ill. 1979); *Hubbard* v. *Rubbermaid, Inc.*, 78 F.R.D. 631, 642-43 (D. Md. 1978); *Carpenter* v. *Herschede Hall Clock Division*, 77 F.R.D. 700, 701 (N.D. Miss. 1977); *Miller* v. *Motorola, Inc.*, 76 F.R.D. 516, 518 (N.D. Ill. 1977) (such suits do not survive *Rodriguez*). *See Alexander* v. *Gino's, Inc.*, 621 F.2d 71, 75 (3d Cir. 1980) (*Rodriguez* dictates that there be some class that satisfies strict requirements of Rule 23(a); "across-the-board" concept then permits broadening to consider claims technically beyond scope of class claims); *DeGrace* v. *Rumsfeld*, 614 F.2d 796, 811 (1st Cir. 1980) (pretermitting question of whether "across-the-board" actions survive *Rodriguez*). *See generally* Note, *Antidiscrimination Class Actions Under the Federal Rules of Civil Procedure: The Transformation of Rule 23(b)(2)*, 88 Yale L.J. 868, 882-83 (1979); Comment, *The Proper Scope of Representation in Title VII Class Actions: A Comment on East Texas Motor Freight Systems, Inc.* v. *Rodriguez*, 13 Harv. C.R.-C.L. L. Rev. 175, 186 (1978).

mental thesis of "across-the-board" actions remains the existence of a discriminatory animus cutting across a variety of employment practices; where there is substantial evidence that such an animus exists, the class representative "possesses the same interests" in its elimination and "suffers the same injury" from its presence, within the meaning of *Rodriguez*, as the class members she represents.[11] Whether the direct approach typical of the Fifth Circuit, in which a broad class is certified, or the two-step approach of the Third Circuit, where a narrower class is certified but broader issues examined, *see Alexander* v. *Gino's, Inc.*, *supra* n.10, is employed, an "across-the-board" suit serves to vindicate classwide rights on a classwide basis.

Notwithstanding the propriety of "across-the-board" actions in appropriate cases, it must be kept in mind that not every Title VII suit, nor even every Title VII class action, is an "across-the-board" suit. Only where the plaintiff alleges that the particular discrimination she has suffered is due to a racist or sexist animus pervading the defendant's practices, and only where the plaintiff presents sufficient proof of that allegation at the class certification stage, should an action be certified as an "across-the-board" class action. *See Falcon* v. *General Telephone Co.*, *supra*, at 376 n.9. The thrust of this court's earlier opinion was that the plaintiffs in this case have met that burden. At the class certification stage, the plaintiffs presented statistical evidence showing discrimination in hiring, pay, promotion, and termination. These statistics constituted substantial evidence that

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[11]The consistency between *Rodriguez* and the "across-the-board" approach was thus stated in *Arnett* v. *American National Red Cross*, *supra* n.10:

> This Court does not believe that the Supreme Court intended [*Rodriguez*] to preclude an across-the-board attack by *one who was discriminated against* — whether it be in the hiring, promotion, or discharge aspects of the defendant's practice. What the Supreme Court did intend was to preclude the maintenance of a class action by one who was *not discriminated against at all.*

78 F.R.D. at 77 n.6 (emphasis in original; citation omitted).

discrimination at the Bank, if indeed such discrimination were provable at trial, was the product of a common discriminatory animus characteristic of "across-the-board" actions. It was on that basis that this action was so certified.[12]

One additional factor, not fully present at the time of the court's 1979 certification order, counsels in favor of "across-the-board" treatment for this case. The court noted at that time that challenged practices such as promotion, pay, training, testing, transfer, job assignment and classification, job content, and constructive discharge were intertwined. *Vuyanich*, *supra* n.1, 82 F.R.D. at 433. What was not then apparent, but which now reinforces the decision to treat this as an "across-the-board" suit, was the fact that much of the statistical proof presented at trial would mirror this intertwined relationship. The introduction of multiple regression econometric studies, discussed more fully in sections VI through VIII, *infra*, which can in certain circumstances measure discrimination in a wide variety of forms through related statistical tests, [13] suggests that "across-the-board" treatment, far from fragmenting the proof adduced at trial,

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[12]The Bank points to a series of lower court cases in which classes limited to discrimination in specific employment practices (*e.g.*, hiring, termination, etc.) were certified. It argues that these cases, while consistent with an "across-the-board" approach, recognize a generally applicable principal that after *Rodriguez* Title VII class actions must be so limited. Otherwise stated, the Bank argues that if "across-the-board" suits have survived *Rodriguez*, that case at least mandates that the size of the "board" be reduced to specific employment practices. This argument loses sight of the case-by-case approach by which purported "across-the-board" suits must be evaluated. The fact that in other cases plaintiffs have not met their burden of showing systemwide discriminatory intent (or have failed to meet other requirements of Fed. R. Civ. P. 23(a) such as adequacy of representation) does not indicate that an "across-the-board" suit may not be certified where those burdens have been met.

[13]*E.g.*, use of a single multiple regression for initial placement/promotion and salary discrimination on the part of plaintiffs' experts. *See* section VIII(A)(1)(i), *infra*.

may in fact be a preferred method for testing for discrimination by an employer with a large diverse work force.

B. *EEOC Charges by Intervenors*

The Bank next challenges this court's earlier holding, *see Vuyanich*, *supra* n.1, 82 F.R.D. at 437-38, that Marisu Fenton, Dorothy Hooks, and Marjorie Jackson could intervene as the representatives of certain subclasses despite having failed to file EEOC charges. Citing *Hodge* v. *McLean Trucking Co.*, 607 F.2d 1118 (5th Cir. 1979), it asserts that the case of *Wheeler* v. *American Home Products Corp.*, 563 F.2d 1233 (5th Cir. 1977), on which this court's holding was based, has been overruled. This argument must fail for two reasons. First, one panel of the Fifth Circuit has no power to overrule a decision of a previous panel. *E.g.*, *Ford* v. *United States*, 618 F.2d 357, 361 (5th Cir. 1980); *Gates* v. *Collier*, 616 F.2d 1268, 1272 (5th Cir. 1980). Second, even were a panel possessed of such a power, examination of *Hodge* reveals it to be fully consistent with, if not dictated by, the *Wheeler* doctrine.

The Fifth Circuit in *Oatis* v. *Crown Zellerbach Corp.*, 398 F.2d 496 (5th Cir. 1968), first established the rule that unnamed plaintiffs in a Title VII class action need not have exhausted administrative remedies by filing a discrimination charge with the EEOC. The court in that case reasoned that it would "be wasteful, if not vain, for numerous employees, all with the same grievance, to have to process many identical complaints with the EEOC." 398 F.2d at 498. Thus it held that the EEOC complaint of the named class representative was sufficient to support an action on behalf of the entire class.

This rule was extended to intervenors in *Wheeler* v. *American Home Products Corp.*, *supra*, an action in which class status had been denied. *See Romasanta* v. *United Airlines, Inc.*, 537 F.2d 915, 919 n.7 (7th Cir. 1976), *aff'd sub nom. United Airlines, Inc.* v. *McDonald*, 432 U.S. 385 (1977). The *Oatis* and *Wheeler* cases both rely on the EEOC

complaint of the original plaintiff to stand in lieu of EEOC complaints by others. Hence it is not surprising that intervention was denied in *Hodge*, where the original plaintiff had failed to file an effective EEOC complaint, since in that case the intervenors could not rely on the original plaintiff's charge. This being the case, *Hodge* cannot be interpreted as altering the long-standing rule in the Fifth Circuit that intervenors need not exhaust EEOC remedies.

Finally, the Bank argues that there must be an independent basis of jurisdiction for each subclass, *i.e.*, that for each subclass there must be a representative who has filed an EEOC charge.[14] The Bank argues that this requirement is a necessary concomitant of an asserted requirement under Fed. R. Civ. P. 23(c)(4)(B) that each subclass meet all the requirements of Rule 23. *See Monarch Asphalt Sales Co.* v. *Wilshire Oil Co.*, 511 F.2d 1073, 1077 (10th Cir. 1975); *Weathers* v. *Peters Realty Corp.*, 499 F.2d 1197, 1200 (6th Cir. 1974); *cf. Chmieleski* v. *City Products Corp.*, 71 F.R.D. 118, 150 (W.D. Mo. 1976) (numerosity). Assuming *arguendo* that subclasses must always satisfy each requirement of Rule 23, it does not follow that an independent jurisdictional base is required for each subclass. The *ratio decidendi* of *Oatis* and *Wheeler* was that the named plaintiff's EEOC charge will be typical of those which would have been filed by those she represents. Subclassing was undertaken in this case for the dual purposes of facilitating presentation of issues, *Vuyanich*, *supra* n.1, 82 F.R.D. at 433, and eliminating potential conflicts of interest, *id.* at 435. Since the court found plaintiffs' claims to be an "across-the-board" attack on discriminatory practices, typicality, while serving as a convenient basis for separation of subclasses, was not a factor compelling subclassing. Otherwise stated, the entire class, notwithstanding subclassing, continues to complain of "across-the-board" discrimination. Hence, just

[14]This argument is directed against the subclass of female non-exempt employees. That subclass, represented by Marisu Fenton, is the only subclass not represented in whole or in part by one of the original named plaintiffs, both of whom have exhausted their EEOC remedies.

as absent class members in an "across-the-board" suit may rely on the named plaintiff's charge, *Oatis, supra*, and just as intervenors who assert claims common to those asserted by existing plaintiffs may travel on those plaintiffs' complaints, *Wheeler, supra*, the subclass representatives may rely on the EEOC charges of plaintiffs Vuyanich and Johnson.[15] *See Vuyanich, supra* n.1, 82 F.R.D. at 437-38.

C. *Class Redefinition.*

This court has recognized its "continuing duty to monitor and modify the class according to the facts that develop." *Cooper* v. *University of Texas, supra*, at 190. Behind this seemingly simple phrase, however, lies considerable complexity. Throughout the evaluation process, the legal standards remain the same: the case must satisfy the four prerequisites of Fed. R. Civ. P. 23(a), and must fit into one or more of the categories of Fed. R. Civ. P. 23(b). Nonetheless, the extent to which a determination that these requirements have been satisfied may be reexamined during the course of the litigation must vary from requirement to requirement and must depend on the procedural posture of the case. Just as class certification is not a ritual exercise which once done may be laid to one side, class reevaluation cannot depend on a formalistic invocation of the five class action requirements.

The four prerequisites of Fed. R. Civ. P. 23(a) serve to protect the differing and occasionally antagonistic interests

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[15]The case of *Fewlas* v. *Allyn & Bacon, Inc.*, 83 F.R.D. 161 (D. Mass. 1979), cited by the Bank, is not to the contrary. In that case, after requested certification had been granted in part, five prospective intervenors sought to represent the uncertified portion of the class. The court denied permission to intervene since the intervenors had not filed EEOC complaints, holding that the intervenors were "not in the same class as the plaintiff." 83 F.R.D. at 164. *Fewlas* was not an "across-the-board" suit: the court specifically stated that there was no basis for concluding that the claims of the certified and uncertified portions of the class were interdependent. *Id.* Moreover, in the present case, unlike *Fewlas*, the prospective intervenors were already members of a broadly certified class.

of the named parties, the unnamed class members, and the court. The numerosity requirement of Fed. R. Civ. P. 23(a)(1), for example, protects the interests of absent class members, who might otherwise be unnecessarily deprived of the right to control their own litigation, and those of the court, "in assuring a full and fair exposition of views by all affected parties when it is practicable to join them in a single proceeding." *Scott* v. *University of Delaware*, 601 F.2d 76, 88 (3d Cir.), *cert. denied*, 444 U.S. 931 (1979). The commonality requirement of Fed. R. Civ. P. 23(a)(2) serves to focus the issues, protecting both the court and the defendant by ensuring that resources are not wasted through inquiry into a multitude of diverse controversies. The adequacy of representation test of Fed. R. Civ. P. 23(a)(4) is for the primary benefit of absent class members, whose rights might otherwise be adjudicated in a binding fashion without a complete presentation of the facts and legal arguments supporting their contentions. *See generally* C. Wright & A. Miller, *Federal Practice and Procedure* § 1765 (1972). The typicality requirement of Fed. R. Civ. P. 23(a)(3) has been characterized as a "double schizophrenic." 3B *Moore's Federal Practice* ¶ 23.06-2, at 23-192 (2d ed. 1980). It serves both the class and the court, complementing the commonality requirement as well as providing an intuitive check on the court's determination that the class representative will adequately protect the rights of absent class members. The differing nature of these purposes suggests that differing levels of inquiry apply to each of the requirements as the litigation evolves.

At the outset of the case, all four requirements must be satisfied.[18] Fed. R. Civ. P. 23(c)(1) requires the court, "[a]s soon as practicable after the commencement of" the

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[18]The case must also fall within one or more subsections of Fed. R. Civ. P. 23(b). Since satisfaction of this requirement turns largely on the nature of the plaintiffs' claims, principally as set forth in the pleadings, a determination that the requirement has been satisfied is not likely to require reevaluation as the case progresses. In the present case, the bank makes no claim that the case is not covered by Fed. R. Civ. P. 23(b)(2).

action, to determine whether it may be maintained as a class action. The standard of proof for such a determination is, however, ill-defined. As the court stated in its earlier order with regard to commonality:

> Of course a plaintiff must do more to demonstrate the existence of the question than simply assert its existence. Bare bones conclusions are insufficient. At the same time, a plaintiff need not make out a prima facie case of liability. The higher courts have not yet articulated where between these marks a plaintiff must place his proof.

Vuyanich, supra n.1, 82 F.R.D. at 431. Similar uncertainty exists as to how far a plaintiff must go in proving numerosity, adequacy, and typicality. We do know that a plaintiff need not show at the class certification stage that she has a winning individual claim as a *sine qua non* to the typicality of her claim or the adequacy of her representation. *Huff* v. *N. D. Cass Co.*, 485 F.2d 710 (5th Cir. 1973) (*en banc*). At this early stage, the typicality requirement will commonly be met by a showing that the issues which will likely be raised at trial by the named plaintiff are typical of those of the class, and the adequacy requirement by a demonstration that plaintiff will likely be an adequate representative at trial due to her incentive and ability to represent the class and the absence of conflicts of interest between herself and the class.

Fed. R. Civ. P. 23(c)(1) also authorizes the court to alter or amend a class certification order as the litigation progresses. Hence if pretrial activity demonstrates that a case is not appropriate for class treatment, the district court should decertify the action. *Lamphere* v. *Brown University*, 553 F.2d 714, 720 (1st Cir. 1977). Considerations such as this led this court to decertify the portion of the class composed of unsuccessful female applicants for nonexempt positions. *Vuyanich, supra* n.1, 82 F.R.D. at 438. As discovery progresses, it is reasonable to hold the plaintiff to a

higher standard of satisfaction of such requirements as numerosity and commonality, as to which more precise proof will become available. At the same time, reliance on incentive, ability, lack of conflict, and typicality as measures of adequate representation, while still present, will give way to an evaluation of the extent to which the plaintiff's litigation performance demonstrates adequacy. Thus if it becomes apparent that adequate representation is not being provided, the court must withdraw class status from the suit. *Guerine* v. *J & W Investments, supra,* at 864-65.

The duty to continually reevaluate class status does not end with the commencement of trial. Because, however, by the end of trial the court's interests in efficiency and manageability have for better or for worse been realized or frustrated, the focus of reevaluation at this stage must be on the factors protecting the parties, named and unnamed. Principal among these is adequacy of representation, and the court must not hesitate to decertify a class in whole or in part if the plaintiff has failed to present at least minimal evidence, or has otherwise demonstrated that her representation of all or part of the class is less than adequate. *Cooper* v. *University of Texas, supra,* at 198. Likewise, if the court finds that the numerosity requirement, which is based in part on protection of the absent class members' right of autonomy, is not satisfied, the court must decertify. *Scott v. University of Delaware, supra,* at 88-89. By this stage of the proceedings, the emphasis is on actual rather than predictive measures of adequacy and numerosity: the proof has presumably been fully developed, and the court may evaluate plaintiff's actual adequacy at trial.

The role of typicality in the post-trial class reevaluation scenario is uncertain. To the extent that typicality mirrors the commonality requirement, whose role is diminished once the trial is concluded, its role will also be diminished. To the extent that typicality serves as a predictor of adequacy of representation, its importance is overshadowed by the more objective measures of adequacy which become available after

prolonged observation by the court of the conduct of plaintiff and her counsel. While the typicality requirement does serve a residual role of providing a check on the accuracy of that evaluation, that role is limited: unless the named plaintiff's claim appears at trial to be so atypical of those of the class that the adequacy of her representation is drawn into question, the court should not decertify the class merely because the individual plaintiff's proof differs from that presented on behalf of the class. This is especially the case where, as here, consideration of the named plaintiff's individual claim has been severed from trial of class issues.[17]

The Bank argues that there must be a "continuing nexus" at all stages of the litigation between the named class representation and the class members she represents. While this assertion is undoubtedly correct in the abstract, the "continuing nexus" test cannot be mechanically applied without regard to the procedural posture of the case. In each of the cases cited by the Bank, an appellate court held that a class representative whose individual claim has failed cannot *continue* to represent the class, either on appeal or on remand following appeal. *East Texas Motor Freight Systems, Inc.* v. *Rodriguez, supra; Armour* v. *City of Anniston*, 597 F.2d 46 (5th Cir. 1979), *vacated*, 100 S.Ct. 1334, *remanded*, 622 F.2d 1226 (5th Cir. 1980); *Davis* v. *Roadway Express, Inc.*, 590 F.2d 140 (5th Cir. 1979), *on rehearing*, 621 F.2d 775 (5th Cir. 1980) (reaffirmed, but on other grounds than in earlier opinion); *Camper* v. *Calumet Petrochemicals, Inc.*, 584 F.2d 70 (5th Cir. 1978); *Satterwhite* v. *City of Greenville, supra*

[17]The Bank argues that this severance operates to its prejudice, in that it is deprived of an additional opportunity to demonstrate that class certification was improper. Such an argument rings hollow in light of the fact that the Bank was twice afforded the opportunity of challenging the class certification in formal hearings. While the court has a continuing duty to monitor and modify the class, that duty does not extend to affording a defendant unlimited opportunities to develop evidence in opposition to class certification at the expense of trial efficiency and convenience.

n.8.[18] It is a far different matter, however, to hold that the failure of a named plaintiff's claim at trial requires the retroactive decertification of the class and consequent failure of the class claims.[19]

This distinction is recognized by the "continuing nexus" cases themselves. In *Rodriguez*, the progenitor of this line of cases, the Court stated:

> Obviously, a different case would be presented if the District Court had certified a class and only later had it appeared that the named plaintiffs were not class members or were otherwise inappropriate class representatives. In such a case, the class claims would have already been tried, and, provided the initial certification was proper and decertification not appropriate, the claims of the class members would not need to be mooted or destroyed because subsequent events or the proof at trial had undermined the named plaintiffs' individual claims. [Citations]. Where no class has been certified, however, and the class claims remain to be tried, the decision whether the named plaintiff should represent a class is appropriately made on the full

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[18]The Supreme Court's recent decisions in *United States Parole Commission* v. *Geraghty*, 48 U.S.L.W. 4296 (1980), and *Deposit Guaranty National Bank* v. *Roper*, 48 U.S.L.W. 4279 (1980), may arguably be read as casting some doubt on the "continuing nexus" line of cases. In light of those decisions' emphasis on Article III standing considerations, however, and the statement in *Geraghty* that "[t]he question of who is to represent the class is a separate issue" from the case or controversy question decided there, 48 U.S.L.W. at 4301, it would seem that the Rule 23 "continuing nexus" cases would retain their vitality. *But cf. Satterwhite* v. *City of Greenville*, 100 S.Ct. 1334 (1980) (vacating and remanding in light of *Geraghty* and *Roper*); *Armour* v. *City of Anniston*, 100 S.Ct. 1334 (1980) (same). In any event, the "continuing nexus" test does not operate to destroy class certification here.

[19]This is of course not meant to imply that any of the named plaintiffs' claims have in fact failed. As previously noted, those claims have been severed for later consideration.

> record, including the facts developed at the trial of the plaintiffs' individual claims.

431 U.S. at 406 n.12.[20] The Fifth Circuit in *Satterwhite* outlined the reasons underlying this distinction:

> Where a class is certified, and class claims tried, before the lack of merit or mootness of the representative's claim is discovered, the class representative has already assiduously asserted the claims of the constituents. The conservation of both litigants' and judicial resources makes it desirable not only to avoid abortion of the litigation but also to prevent prejudice to the members of a certified class who, in the midst of a law suit, suddenly discover that their representative's claim is no longer viable.

578 F.2d at 994. *Accord, Drayton* v. *City of St. Petersburg*, 477 F.Supp. 846, 857 n.19 (M.D. Fla. 1979). Indeed, in addition to wasting the resources of the parties and the court and frustrating the reasonable reliance of absent class members, decertification on the basis of failure of the individual plaintiff's claim would in many cases disserve the defendant, by depriving it of an adjudication of nonliability binding on the class.

It remains only to apply these standards of class reevaluation to the present case. The Bank makes no argument that the numerosity and commonality requirements are no longer satisfied, and indeed no such argument could be made given the state of the record. The course of the trial has revealed no continuing pattern of inadequacy of representation warranting decertification. Decertification of particular subgroups within the class and subclasses involves an evaluation of whether the plaintiffs have produced at least minimal evidence on the issues applicable to those subgroups, and

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[20]The Court's reference to decertification presumably refers to decertification on such grounds as lack of numerosity or lack of adequate representation.

is best deferred until consideration and evaluation of those parts of the plaintiffs' case. As will be seen, no decertification is warranted.

Finally, the testimony of the named class representatives reveals their claims to be sufficiently typical that no substantial doubts are raised as to the adequacy of their representation. The testimony of plaintiffs Vuyanich and Johnson has already been described in section I, *supra*, and will not be repeated here. The testimony of intervenors Jackson, Fenton, and Hooks at trial mirrored that given by them during the class certification hearing and summarized in n.6, *supra*. The wide variety of discriminatory practices testified to by these individuals reinforces the court's earlier determination that the essence of their claims was the presence of a racially and sexually discriminatory animus pervading the Bank's personnel practices. Whether this animus in fact existed is a question which must await more detailed evaluation of the statistical and other evidence presented at trial. The court is convinced at this juncture, however, that the *claims* of the named plaintiffs and intervenors, whether meritorious or not, are typical of those asserted on behalf of the class.

III. *The Bank and Its History*[21]

With 2,400 full-time employees and assets exceeding $8 billion, Republic National Bank is among the 25 largest banks in the United States and is the largest bank in the South. Through its sister companies, its corporate influence is further extended, as it is the "flagship" bank of the Republic of Texas Corporation, a bank holding company incorporated under the laws of Texas with some 30 wholly-

[21]No effort is made in the following narrative to provide a definitive description of the Bank. The objective is instead to provide an overview of its structure and personnel practices. By necessity we paint with a broad brush in this section in an effort to provide a backdrop to the detailed statistical data that follow.

owned subsidiaries. The Bank's principal business is commercial lending. Republic lends to consumers as well as businesses, but consumer lending accounts for not more than 5% of its loan portfolio. Indeed, Republic is the third largest nonretail unit bank in the United States.

The "line" function of commercial lending is carried out by the Bank's five commercial banking departments. The Banking Department, consisting of the Cash Management, Commodity, Metropolitan, Southwestern, and National Divisions, provides business loans and financial consultation to the customers of those divisions' respective geographic regions. Loans to individuals are provided by the Consumer Lending Group of the Metropolitan Division. Loans to other banks are generated by the Correspondent Banking Department, while the Real Estate Department offers single mortgage lending services and interim financing for the building and construction industry. The Petroleum and Minerals Department makes loans to companies in the petroleum and related minerals industry, and the International Department provides financial assistance to United States based companies who wish to deal in foreign markets, in addition to financial service to those markets.

Other departments in the Bank include the Trust and Investment Department, the Finance and Credit Administration Department, the Operations Department, and the Funds Management Department. The Trust and Investment Department is responsible for managing money and other assets for individuals and organizations, according to specified conditions set out in trust agreements. The department consists of the following divisions: Securities Management Services, Personal Services, Operations Services, Corporate Services, Legal Counsel, Taxes, and Business in Trust.

The Funds Management Department is responsible for making investment judgments affecting the flow of funds in and out of the Bank. The objective of this department is to ensure that surplus funds are properly invested to obtain

maximum return, and that funds needed to meet the Bank's money commitments are secured at the lowest cost. This department also houses the Bank's municipal bonds and sales and trading operation, as well as bond portfolio management.

The Finance and Credit Administration Department is responsible for the day-to-day business of the Bank. This department includes the following divisions: Controller, Personnel, Credit and Corporate Finance, and Loan Review and Special Loans. The Operations Department is responsible for all of the Bank's banking customer services functions and data processing, programming, production, and development. Other staff divisions at the Bank include Corporate Planning, Legal Counsel, Marketing and Public Affairs, and Economic Research, all of which report directly to the President, and the Audit Division, which reports to the Chairman of the Board.

The Bank's Personnel Division is responsible for coordinating and administering the Bank's equal employment and personnel policies, including hiring, promotion, compensation and benefits, counseling, discipline, and termination. These responsibilities are carried out by three group managers. The Personnel Group, headed by Vice President Thomas E. Barksdale, has responsibility for the salary administration section and the payroll and benefits section. The Personal Development Group, led by Vice President Dan White, coordinates Bank employee participation in external employee development programs, and the development and presentation of internal programs leading to personal development. The Employment Group is the responsibility of Jerry M. Watson, Vice President and Manager of Interview and Selection. This group carries out the Bank's staffing and recruiting functions. Watson also has responsibilities relating to affirmative action, internal employee transfers, terminations, counseling, and record keeping. Each group manager reports to Thomas Croft, Senior Vice President and Director of Personnel, who in turn reports to

the Executive Vice President and Manager of the Bank's Finance and Administration Department.

The Bank's structure thus reflects independent staff divisions serving the core lending function, including economic research, legal counsel, marketing, and public affairs. Over the decade spanned by this lawsuit, that structure has been staffed with a work force that has ranged in size from a low of 1,450 employees to a high of approximately 2,400. Over this time the internal lines of the structure have occasionally shifted, with resulting changes in departmental or division categories. Today the work force falls into nine separate organizational departments, with the staff divisions earlier mentioned.

Roughly speaking, the Bank's work force may be sliced horizontally according to the Fair Labor Standards Act categorization of exempt and nonexempt employees. During the period from 1969 to 1972, 71% of the work force was nonexempt and 29% was exempt (Plaintiffs' Exhibit 641). The same approximate percentage existed throughout.

Before 1965 there was a virtual absence of black employees from the Bank's work force. From 1968 through 1972, there were no blacks in the exempt category. The first black officer of Republic Bank did not arrive until 1973. As late as 1972, females were significantly better represented than blacks in their employment in the exempt category. Like blacks, however, and throughout the 10-year period at issue, there was a concentration of females in the nonexempt categories, and in turn in the lower grades of the nonexempt range. The numbers of females hired into exempt positions, and the movement of females upward within the nonexempt category, have risen gradually over the 10-year period. Today there are approximately 15 black employees in the exempt category, all of whom are below the vice president level. Of 570 Bank officers, 132 are female, 13 of whom are at the level of vice president.

IV. *Bank Personnel Policy*

A. *Personnel Division and Hiring.*

The Personnel Division of the Bank is headed by a Vice President. The Vice President is responsible for the Bank's personnel activities, including day-to-day staffing, campus recruiting, EEO activities, the infirmary, counseling, and career advancement. Eight exempt employees work under his direct supervision. Hiring is done in many ways. Nonexempt employees are recruited largely through word of mouth and applicants for nonexempt positions are usually "walk-ins." The experience of the Personnel Division has been that applicants for exempt positions are attracted by advertisements, referred by other companies to the Bank, or recruited at college campuses. The use of employment agencies and search firms is principally confined to the filling of secretarial positions or hiring of accountants and data processing specialists. Recruiting is also done through governmental and civic agencies, including the Texas Employment Commission, National Association of Bankers, the Dallas Interracial Council, Minority Women's Employment Council, the Black Chamber of Commerce, and the Mexican-American Chamber of Commerce. In exempt job offerings, the Personnel Division has throughout the period covered by this suit placed great emphasis on the interview process. The Bank has used from time to time both black and female interviewers. The ultimate hiring decisions for exempt employment have, however, been made by white males.

Throughout the 10 years covered by this suit, the Bank has had a large number of job titles and positions. The number of such titles has ranged to upwards of 3,500, with as many as 700 to 950 titles in use at a given time. In mid-1979, as part of the defense of this suit and, according to the Bank, for other business purposes as well, the entire job structure was regrouped by occupational codes and families. The purpose of this effort was said to be to achieve horizontal symmetry in job functions by looking past job titles

to job functions. Employees with similar job functions, albeit with different descriptive titles, were grouped together in the same job family. This division of the work force, whose results are the benchmarks for labor availability in the statistical hiring studies and other studies, is reviewed in depth where those issues are discussed. The point here is that in an overview of the Bank structure, we find a shifting organization as the Bank grew in size followed by a dramatic adjustment accomplished in one sweep. The validity of that precipitate change must be examined. *See* section IX(G), *infra*.

With recruiting for entry positions leading to "line" jobs, the effort begins on college campuses, and has historically been concentrated in the Southwest. Recruiting at college campuses is confined with little exception to recruitment of exempt employees entering the credit analyst program.[22] The credit analyst program is the main entry channel for future bank executives. As stated by the Bank, "the Credit Training Program is the means by which [the Bank] seeks out and develops persons with the potential to assume positions of managerial responsibility with the bank" (Defendant's Post Trial Brief at 288). In hiring into this program, the Bank places great emphasis upon a business-related degree with emphasis in accounting and finance, a preference that will be examined later in the context of hiring and availability of potential employees. *See* section IX(G), *infra*. In the time period 1970-1978, 181 persons were hired into the credit training program. Of this group, 34 were hired for their experience. Of the remaining 147, only two did not have a business-related degree. These two held degrees in mathematics and law, respectively. This is consistent with the overall hiring pattern for the years 1970-1978, when there were a total of 997 exempt hires, of which

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[22]The Bank also has an "Executive Recruiting Program" where promising students are pointed out to high level bank officials by college faculty members.

860 (86%) had at least a bachelor's degree. Of those who did not, virtually all had experience related to the jobs for which they were hired (Defendant's Exhibits 508, 566).

Credit analysts assist loan officers while they are being "trained" and provide a pool from which the loan "floor" draws. The credit training program is said by the Bank to be the breeding ground for its loan officers. And except for occasional lateral hiring of an individual with equivalent training, it is the only means for staffing loan officer positions. An examination of the pattern of Bank hires and track of progression followed by incumbent management of the Bank reveals that as a practical matter, it is the main track for higher level executives within the Bank. This is not surprising in view of the Bank's core function of commercial lending and its insistence upon college degrees in business fields for persons in commercial lending. Indeed, throughout, the majority of all Bank officers have been in lending and marketing jobs.

The credit training program at the Bank has existed throughout the time period. In fact, the current president of the Bank is a product of that program. The program's changes have been primarily in increased intensity in curriculum. In 1969, the Bank employed a professor at the Harvard Business School to design a more intensive program and the Bank has implemented that program. In a nutshell, there is no other internal training or internship program of a formal nature at the Bank for exempt employees.

The Credit Department has approximately 36 desks. A new employee historically spends approximately nine months in the department before entering one of the respective loan divisions. The new employee is expected to progress through levels of credit analyst, unit manager, and supervisor. In this nine month period, the analyst receives increasing responsibility for the credit analysis work of prospective borrowers or existing bank customers. Part of the

program consists of a "live-in" system. Under this program, analysts, after a few months at the Bank, are assigned to a particular division and work for that division alone for approximately a month. This rotating assignment of live-ins allows the analyst to become familiar with the somewhat differing emphases of the respective areas of the Bank while allowing the lending officers in those areas to observe the work of the credit analyst. Credit analysts are not officers of the Bank. It is anticipated, however, that upon completion of the credit program and acceptance of a position in one of the respective lending divisions the new employee will be elected to officer status.

When we turn to the filling of vacancies for nonexempt positions, the emphasis shifts from the campus to the Bank's internal staff and to more local labor pools. Moreover, there is far more lateral hiring for nonexempt jobs than for exempt jobs. There is also some movement from nonexempt into the lower exempt jobs as well as some overlap of exempt and nonexempt personnel hiring responsibility. With nonexempt employees, the Bank's promotional and training policies have changed over the years. Before 1975, the movement of employees from job to job within the Bank lacked formal structure. There were no predetermined paths, and no specific prohibitions or established channels. Movement was usually accomplished through one or a combination of three methods: supervisory referral; employee request to appropriate managers; and employee-initiated contact with interviewers in the Personnel Division. Not surprisingly, this loosely structured process caused personnel decisionmaking to be more subjective than the system which came into effect in 1975.

In February of 1975, the Bank created a "career advancement program." The career advancement program consists of formalized job posting and bidding, enabling employees to learn of the existence of other positions within the Bank. The program contemplates that job openings will be posted outside the employee cafeteria, at the drive-in motor bank,

and at the Spring Valley Commuter center, with listings updated daily. In April of 1977, the program was expanded to include exempt job openings except those with the title of officer, manager, or administrator. Under the program, an employee interested in a transfer completes a career advancement interview request form and forwards it to the Personnel Division. As applications for transfers are received in the Personnel Division, the personnel files of the applicants are reviewed for eligibility for transfer by a personnel representative. An employee is not eligible for transfer consideration until he has been in his current job for six months. Eligible applicants are then scheduled for screening interviews in the Personnel Division. Interviews are conducted by the supervisor in the section to which the transfer is sought. Bank policy is that effort is to be made to fill vacancies by internal transfer or promotion before outside hiring is attempted, although this policy does not appear to be uniformly followed.

When the Bank turns to outside employees, authorization must be granted by the Personnel Division upon receipt of a personnel requisition by a line manager or a request for addition to staff.[23] The Personnel Division's employment group interviewers begin efforts to fill the job. Applicants are screened by the Personnel Division and those applicants considered to possess the qualifications for the requested job are referred to management in the target division.

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[23]The personnel request is made by use of a requisition form submitted by a line supervisor. The requisition form until 1968 had blocks to allow an expression of sex preference. In 1967, some 67% of the requests made had sex preference checks, and in 64% of all cases the request was met. By 1969, 11% had preference stated and the extent to which the preference was honored is not known. Nor is the relative percentage of requested males and females known. There were occasional explications of the requests such as "cute size preferred" (presumably a request for a female) but there was no pattern to such requests. At the same time there is no evidence that any forms contained references to race. The form was changed in 1968, although many of the old forms continued in actual use on a sporadic basis for some time thereafter.

As earlier mentioned, hiring for most nonexempt positions at the Bank begins with an applicant's visit to the Personnel Division. Walk-ins are required to sign an applicant log at one end of the Personnel Division offices. The log is maintained by the interview coordinator, but no information has been maintained regarding qualifications of particular applicants and information regarding race and sex was not kept before 1974. Sources of Bank hires also include unsolicited resumes mailed to the Bank and college recruiting programs. While exempt and nonexempt hiring have some common sources, these resumes and the college recruiting program have been the richest source for exempt applicants. Despite this small overlap in sources, the hiring approaches were different. Before 1974, the Personnel Division used a "clerical" application form and a "professional" application form. These forms were the same except that the professional form contained places for professional and technical references while the clerical form contained a space for office machine operation, typing speed, and shorthand speed. The Bank claims that the professional form was given to those who expressed an interest in exempt positions or those who had a college degree. The form, utilized by the Bank since 1974, instructs walk-in applicants to indicate specific areas of banking in which they are interested and for which they are qualified. Upon receipt of the completed application form, the interview coordinator arranges an interview with one of the Personnel Division interviewers if the applicant has the "appropriate" qualifications. That is, there is some pre-interview screening: while the Personnel Division interviews many persons, not all applicants are interviewed. But the failure to interview was not the subject of separate evidentiary focus, and we do not know, apart from inferences from mere general hiring and placement models, whether the failure to interview itself cut along racial or sexual lines. In the interviewing process there is a channeling effect, because applicants have historically been directed to interviewers who specialize in either exempt or clerical or nonexempt positions, and the route to the exempt positions not surprisingly results in a more

rigorous interview process. If the interviewer determines that the applicant is qualified for an open position in which she has expressed interest, the applicant is referred to the appropriate supervisor or manager. If the manager determines that the applicant is the one desired, attempts are then made to verify the applicant's history. The supervisor/manager makes the final decision to hire or reject the applicant upon receipt of verified work histories. With exempt employees, more than one manager may participate in the decision. The salary level of the incoming employee is chosen by the manager by application of salary guidelines issued by the Salary Administration Section of the Personnel Division. An offer of employment is then extended by the interviewer.

B. *Affirmative Action.*

Beginning in the late 1960's, and continuing with increasing emphasis in 1974 and later years, the Bank has engaged in various affirmative action efforts. In 1974, the Bank came under new and younger upper-level management in the person of President Charles Pistor. At approximately the same time, the Bank began a more intensified effort to engage in affirmative action efforts. At least since Pistor assumed the presidency, there is little question that it has been the announced policy of the Bank's senior management not to discriminate.[24]

In 1964, the first written EEO policy was adopted and circulated within the Bank. The first Affirmative Action Plan was drawn in 1970 and was distributed to managers in 1971.

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[24]As will be seen in the review of the data, the arrival of Pistor and movement in the statistical measures of racial and sexual influences on hiring decisions enjoy a coincidence in time. While an inference of a causal nexus from statistical results is eschewed by the social scientist, the intuitive inference allowed to judges under the law reveals more than coincidence at work. The Bank does not emphasize any increased intensity of effort in the hiring of females and blacks under Pistor, but instead emphasizes claimed increases in availability of "qualified" females and, to a lesser extent, blacks in the labor pool.

The plan was submitted to and approved by the Treasury Department in early 1971. Through 1975, the Treasury Department monitored the Affirmative Action Plan. Under the Bank's Affirmative Action Plan, the Vice President for Personnel receives monthly status reports revealing the percentage of hires that are minorities. The Bank's newspaper advertisements, at least since 1971, have contained the usual addendum that the Bank is an equal opportunity employer. In the 1968-1973 period, five charges of discrimination were filed with the EEOC by employees, as part of a total of 43 charges for the 10-year period of this suit (Defendant's Exhibit 177). The EEOC in July, 1974, charged the Bank with discrimination, and a conciliation agreement was reached in December, 1976 (Plaintiffs' Exhibit 733). The agreement settled four employee charges and set various hiring and distributive goals. In 1975, the Treasury Department presented a list of "deficiencies" which resulted in a conciliation agreement in March, 1977.

Beginning in the latter part of 1968, of 19 colleges visited by the Bank, eight were predominately black and one was predominately female. As Jerry Watson advised his supervisors in April, 1975:

> The selection of colleges and universities ... was strongly influenced by: (1) the Treasury Department's compliance review (May, 1974); (2) the class action discrimination charge filed by Mr. John Powell, Commissioner of the Equal Employment Opportunity Commission (July, 1974); and (3) Republic National Bank's commitment, as expressed in the Affirmative Action Plan, to increase minority and female representation in officer and exempt positions.

Defendant's Exhibit 68. Watson also commented at the same time about the Bank's hiring success, observing that:

> ... a very large number of minority students must be screened in order to find a disproportionately few acceptable candidates ....

Id. In December, 1976, Watson commented to his supervisors about the small number of invitations the Bank was extending as a result of colleges visited, 61% of which had predominate black enrollments: "... the small number of invitations ... is an indication of our continued 'selective' approach to invitations and hiring." Defendant's Exhibit 174. He further observed as of the end of the third quarter of 1976, 25.8% of hires in 1976 were minority: ". . . the majority of minority hiring is accounted for in nonexempt positions." *Id.*

C. *Categorization of Employees.*

As earlier mentioned, before 1973, the Bank's structure viewed vertically consisted of exempt and nonexempt employees. In turn, the nonexempt range was divided into 17 grades. There were five practical levels in the exempt categories. The first four ran through the vice president level with senior vice president and above categorized as number five. In the 1969-70 period, the Personnel Division decided that the top management of the Bank should occupy a separate structure in that their pay values were disproportionate with the lower ranks. Except for that separation of the few officers at the level of top management, the levels of bank officers were not changed. In 1973, as part of a reevaluation of pay structures and personnel assignments, the Personnel Division reexamined the 17 nonexempt grade divisions and decided that a 10-grade structure would be more effective. Among other things, it found that although there were 17 grades, less than 14% of the total of nonexempt employees actually fell in grades 11 through 17. In an effort to avoid this bunching and to correlate the nonexempt jobs with a sound pay structure, the reduction to 10 grades was made.

Beginning around 1970 and continuing until 1973, the Bank undertook a transition to a system of job evaluation known as the "Hay System". It is not necessary to set out in detail this relatively complex technique, because the court finds that nothing intrinsic to the Hay System itself creates

Title VII concerns. Of course if a wage or hiring system is otherwise skewed, the Hay System is no guarantee against liability. A general appreciation of its operation, however, is important to a comprehension of the Bank's personnel policy, its employee structure and the system's usefulness in the multiple regressions in section VII(A), *infra*. We will return to the system's utility in the statistical measurement efforts.

The reduction of the number of nonexempt grades from 17 to 10 was part of the implementation of the Hay System. This system, in use presently at the Bank, is intended to be a technique for comparing a variety of jobs within a firm in an orderly way. The job evaluation phase of the system is claimed to be premised on the know-how needed, the problem solving involved, and the accountability of the job being analyzed. More specifically:

> As Harriette Weiss, a Senior Principal with Hay and Associates, testified, the "Hay System" is basically a euphemism for the Hay Guide Chart-Profile Method of job evaluation, a propietary method utilized by the management consulting firm for evaluating and ranking jobs by job content within an organization. With the aid of job evaluation, a firm is able to establish *a rational and consistent method of calculating the relative worth of jobs, which in turn can be used as a basis for payment of compensation for the performance of those jobs.*

Defendant's Post-Trial Brief at 353 (emphasis supplied). The system is summarized by Hay Associates in Figure 1.

The Bank utilized the Hay method from January 1, 1970, forward with its exempt employees, the method being set up in consultation with Hay Associates. *See* Defendant's Exhibit 202. The first phase of the Hay study involved an effort to establish equitable internal relationships among all positions. This was attempted through a job evaluation process conducted by an in-house committee of Republic

executives, usually one or two levels above the job being evaluated. The result, after review, was the assignment of "points," based on job content (using know-how, problem-solving, and accountability as factors to be taken into account) to each position being evaluated. These "points" have been referred to as Hay points throughout this litigation, though perhaps they are more accurately referred to as "client points"; comparisons with other firms are made possible by conversion of client points to "Hay points." *See* Defendant's Post-Trial Brief at 354 n.100.

The second phase, an effort to develop a competitive salary structure within the Bank, depends on the point values assigned to the exempt jobs in the first phase, and what other employers pay for jobs of equivalent point value:

> Compensation practices are compared among [Hay Compensation Comparison] survey participants utilizing "Hay points" as the standard of reference for comparing jobs of equivalent value. A conversion formula enables each Hay client to convert Hay points to a dollar figure representing the average salary paid by survey participants or the midpoint of a salary range for a job at any given Hay point level.

Defendant's Post-Trial Brief at 359.

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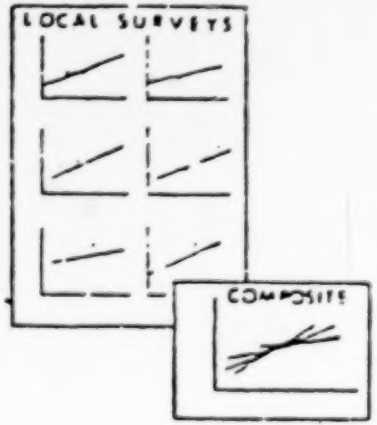
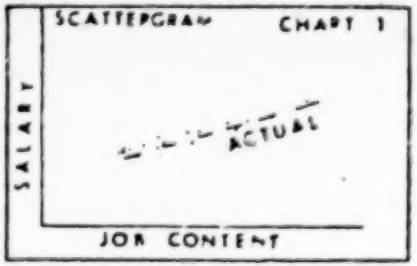
BASED ON HAY GUIDE-CHARTS TO ASSURE CONSISTENT MEASUREMENTS
JOB CONTENT IS EVALUATED AND CURRENT SALARY PRACTICE IS
SHOWN ON A SCATTERGRAM





EXTERNAL COMPARISONS
ARE MADE AT BOTH
—LOCAL AND NATIONAL—
LEVELS.

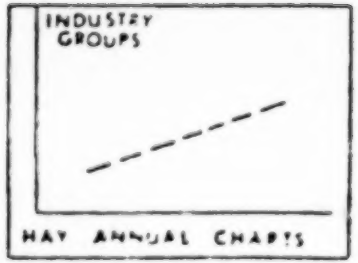


FIGURE 1

(Defendant's Exhibit 203, at "XI").

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The salary range contains a minimum figure that is set as a hiring level rate of pay for applicants meeting position specifications. The maximum figure is said to be one that is only exceeded rarely by an employee with a highest rating, that of "path finder." The salary range has a 50% spread. That is, the maximum is 150% of its minimum. For example, a salary range with a $8,000 minimum would have a maximum of $12,000. Under the plan the midpoint of a salary range (for example, $10,000) would be the area within which the Bank would pay for "consistently satisfactory performance on a sustained basis of the functions assigned to the incumbent." Defendant's Exhibit 202.

Under the plan, employees sometimes can find themselves below minimum if, for example, they are rapidly promoted. The plan allows the Bank to give inequity increases to reduce any such inequities. The minimum has attracted the attention of the Department of Treasury. Since 1977, as a result of a reconciliation agreement with the Treasury Department, the total males, the total females, and the total minorities below minimum are monitored.

The bank has throughout required performance appraisals by the immediate supervisors of employees. The Hay system defines certain ranges of performance. In the exempt position category, the ranges included inadequate, marginal, beginning, fair, competent, commendable, distinguished, and pathfinder.

The nonexempt structure, to which the Hay System was applied in 1973, differs somewhat from the exempt structure in that nonexempt salaries are quoted in monthly sums whereas exempt salaries are quoted in annual sums. Of course there is a difference in this salary spread. With a grade one position, the minimum to maximum spread is 25% while with a grade ten it is 60%. There is also a difference when an employee becomes eligible for changes, as well as difference in allowable percentage salary increases. For example, for nonexempts, higher percentage increases keyed to performance, are allowed. In addition, different

survey data was used for exempts and nonexempts: at the exempt level the competitive salary inquiry was national, while for nonexempts the metroplex area was the primary data source.

V. *Statistical Evidence*

All statistical studies in this case share a common goal: to compare the personnel decisions which have actually been made at the Bank since 1969 with the decisions which hypothetically would occur in the absence of discrimination. In the areas of compensation, initial placement, promotion, and termination, this comparison relates one segment of the Bank population to another, determining whether females or blacks at the Bank are treated differently from males or whites. In the hiring area, the Bank's hiring decisions are compared with data external to the Bank — the availability of blacks and females as measured by Census Bureau data. Each of these comparisons depends upon the existence of an accurate and complete data base reflecting the multitude of individual personnel decisions made by the Bank during the relevant time period. While the statistical models employed by the parties possess varying degrees of "robustness," *i.e.*, ability to withstand the effect of errors in the data or violation of the assumptions on which the models rely, it is generally true that the utility of a statistical comparison is directly dependent on the accuracy and completeness of the data being compared. For this reason, we must, before turning to the statistical models and the results generated by them, carefully examine the sources of data on which those models rely. We must then evaluate the parties' challenges to those data. Having examined the input to the statistical models, we next must determine the extent to which the court is confined to the output of the studies in its presented form, and whether it may or must perform statistical calculations beyond those provided by the parties. Finally, we discuss the role of nonstatistical evidence and its relationship to the statistical studies.

A. *Sources of the Data.*

With some exceptions, all data used by the parties in this case were ultimately derived from employment records maintained by the Bank as its permanent business records. For each present and past employee, the Bank maintains a traditional "personnel jacket," containing such items as the employee's vital statistics and salary, promotion, and performance data. The Bank also maintains a variety of personnel summaries and payroll and other accounting records. In addition, the Bank has since 1973 maintained computerized personnel records. Each of these types of personnel record has played a role in the development of the data bases used by the parties.

The data bases used by the parties, either for statistical analysis or for the generation of other data bases, are summarized in the margin.[25] The data bases used for analysis

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[25]

Data Base	Contents	Years Covered	Source	Frequency	Record Type	Used by
Defendant: A020 tape	Company Employee number Cost center Exempt status Salary Employee status Haypoints/grade Termination date Date of hire Date last perf. appr. Official title Position title Officer level Sex and race Termination reason Type last salary incr. Amount last salary incr. Rating last salary incr. Date of birth + other information	1973-78	existing record	semi-monthly (a few tapes lost or non-existent)	fixed	to prepare A035 & A500 tapes

Data Base	Contents	Years Covered	Source	Frequency	Record Type	Used by
A030 tape	Employee name Educational data + other information	1973-78	existing record	continuous	fixed	to prepare A035 & A500 tapes
A035 tape	Above items	1973-78	A020 A030 + new EEO codes + 18 employees	continuous	variable	Stoikov
A500 tape (also known as A040	Employee number Name Sex and race Date of hire Cost center at hire Year Cost center Job family code Grade or Haypoints Officer level Date of promotion Job family code before promotion Job family code after promotion Date of termination Cost center at term. Termination reason	1969-72	personnel records	snapshot	fixed?	Stoikov Stolzenberg/ Snyder
questionnaire	29 questions (see Appendix B of Defendant's Exhibit 32)	1979	personnel jackets + response	one-time	fixed	Stoikov Stolzenberg/ Snyder

Data Base	Contents	Years Covered	Source	Frequency	Record Type	Used by
Defendant: (continued)						
termina-tions	Involuntary/ voluntary Sex and race Years formal schooling College major College degree Typing ability Shorthand ability Number of office machines Position in last job Time in last job Age at application Year of application	1969-78	A035 A500 per-sonnel jackets	one-time	fixed	Stolzen-berg/ Snyder
hiring data	Job family Position title Name Employee number Date of hire Experience Number years Education Study area Major School County/City	1970-78	per-sonnel jackets	one-time	fixed	Stoikov
Plaintiffs:						
	Items from A020 + highest grade compl. +date of birth	1973-78	A020 A035	annual	fixed	Morgan Blau/ Madden
	Items from A500 + highest grade compl. + date of birth + salary	1969-72	A500 + selected records from per-sonnel jackets	annual	fixed	Morgan Blau/ Madden

A variety of miscellaneous data sources, such as the Bank's EEO1 reports (Plaintiffs' Exhibits 511 *et seq.)*, were also utilized by the various experts.

were derived in principal part from a series of tapes maintained by the Bank and designated by it as the "A020 tapes." These tapes represent semi-monthly "snapshots" of the Bank's work force, and were used by the Bank to generate employee paychecks and day-to-day personnel records. The tapes contain a variety of information on each employee, including the items of information listed in n.25, *supra*, and pension, insurance, and actuarial information.

The Bank also maintains a personnel history tape which it designated as the "A030 tape." This tape, which has not been used on a day-to-day basis, was produced in an attempt to avoid the use of individual personnel jackets, and contains personal data on each employee, together with work histories and information about preemployment education. The A030 tape is the Bank's only computerized record of information about education.

In August of 1978, the Bank developed a tape designated as "A035," which it used for the bulk of its statistical studies. The A035 tape represents a continuous record of the employment history of all Bank employees from January 1, 1973, forward. The tape was constructed by extracting information from the A020 tapes and merging that information with employee names and educational data from the A030 tape. Unlike the A020 and A030 tapes, the A035 tape contained a variable length record for each employee, with one to 95 fields per record.[26] A total of 6,395 present or past employees were represented. Eighteen of these employees, who had accidently been omitted from the A030 tape, were manually added to the A035 tape. Based on a belief that many Equal Employment Opportunity codes on the A020 tapes were in error,[27] EEO codes were changed on the A035 tape to reflect "appropriate" values.

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[26]A "record" is a computer data entry relating to a single subject (*e.g.*, a particular employee). A record consists of a number of "fields" (individual items of data; *e.g.*, name, date of birth, etc.).

[27]The Bank believed "that these errors were caused by a continuation of an historic misinterpretation by Bank personnel of EEOC guidelines regarding code assignment and by deficiencies in the Bank's computer procedures which prohibited code changes following some promotional or transfer movements." Defendant's Post-Trial Brief at 51.

After assembling the A035 tape, the Bank audited the tape for accuracy. A random sample of 375 employee records was chosen, and computerized information for each record was compared with the same information as recorded in the employee's personnel jacket, which the Bank believed to constitute the most reliable source of information on its employees. The audit demonstrated, to the Bank's satisfaction, that most fields contained accurate information.[28] Some fields, however, were found to be, in the Bank's opinion, too unreliable for use. These included salary ratings (24% missing and 6% erroneous), annual performance appraisal ratings (26% missing and 4% erroneous), and, most importantly, information about education.[29]

Before 1973, the Bank did not maintain any computerized personnel records, and for the pre-1973 period it was necessary to manually assemble personnel data from paper records. From information contained in personnel jackets, salary change sheets, and payroll earnings journals, the Bank assembled a computer tape, designated the "A500

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[28]Most fields were found to be accurate in 97-99% of all cases. *See* Plaintiffs' Exhibits 508 and 509.

[29]The omission and error rates for various educational fields were as follows:

School Type	27%	1%
High School Code	29%	1%
College Code	28%	0%
Graduate Code	25%	0%
School Unknown		3%
High School Dates	32%	3%
College Dates	28%	2%
Graduation Dates	24%	1%
High School Graduate	29%	1%
College Graduate	28%	1%
Graduate School Graduate	24%	0%
College Degree	26%	1%
Graduate Degree	24%	0%
College Major	32%	1%
Graduate Major	25%	1%
Grade Completed	31%	10%
Average	27%	2%

The data in this table were derived from Plaintiffs' Exhibit 509.

tape" (sometimes designated as the "A040 tape"). This tape contained information for 1969-72 similar to that contained on the A035 tape for 1973-78.

For certain studies performed by Drs. Stoikov, Stolzenberg, and Snyder, it was necessary to go beyond the Bank's personnel records. To this end, a questionnaire was prepared and submitted to a randomly selected sample of 286 current Bank employees on June 28, 1979. Employees were asked to verify information obtained from personnel jackets and to provide responses to a variety of questions about their work habits, working conditions, motivations, and expectations. Ninety-two percent of the employees surveyed fully completed the questionnaire.

For their regression study on involuntary terminations, Drs. Stolzenberg and Snyder prepared their own *ad hoc* data base. This data base consisted of information from the A035 and A500 tapes, together with a variety of data on education, skills, and experience.

For the purpose of developing weighted average availability figures for use in hiring studies, *see* section IX(F), *infra*, Dr. Stoikov used a variety of data on the education, experience, and geographical origin of those hired by the Bank between 1970 and 1978. These data were obtained from personnel jackets.

While plaintiffs were furnished with most of the computerized data bases developed by the Bank, including the A030, A035, and A500 tapes and selected A020 tapes, they, unlike the Bank, chose not to place primary reliance on the A035 tape. Instead, plaintiffs' computer expert, Dr. David Morgan, prepared a tape for 1973-78 by merging data from the A020 tapes with date of birth and highest grade completed from the A035 tape. For 1969-72, Dr. Morgan merged data from the A500 tape with date of birth, highest grade completed, and salary taken from excerpts from personnel jackets supplied by the Bank. Dr. Morgan's primary purpose in developing these separate tapes was to facilitate use of the Statistical Package for the Social Sciences, a group

of standardized statistical computer programs used in a variety of social science applications. *See generally* N. Nie, C. Hull, J. Jenkins, K. Steinbrenner, & D. Bent, *Statistical Package for the Social Sciences* (2d ed. 1975).

B. *Problems with the Data.*

The parties mount a variety of challenges to the accuracy and reliability of each other's data. Each such challenge is made on two levels: First, the challenging party argues that the data are so infected with inaccuracy and omission that they are unfit for use, and that statistical studies relying on the data should be disregarded. As a fallback position, the parties argue that flaws in the data should be kept in mind in evaluating the strengths and weaknesses of the respective statistical presentations. The purpose of this section is to identify the challenges, and to evaluate whether any challenges have sufficient merit to warrant the total disregard of studies relying on the challenged data. Any inaccuracies not rising to this level will be considered in the evaluation of the statistical presentations which rely on the challenged data.

We begin by noting that the Bank's personnel records form an unusually rich source of data for statistical analysis of employment discrimination. *Cf.* Testimony of Dr. Francine Blau at 207 (Bank's data pool a "really large impressive sample"). Only in the case of a large employer with substantial resources is a comprehensive computerized personnel record spanning many years typically available. To this must be added the fact that a certain measure of inaccuracy in data is a daily fact of life for the social scientist. As Dr. Blau put it,

> I think if social scientists in general waited for perfect data that was completely error free, no social science research would be done so the real question for the researcher is determining when any of these bias[es] or errors are serious enough to precluded [sic] analysis. . . .

Id. at 37-38. Nor are courts immune to this pervasive imprecision: the latitude allowed a district court in computing Title VII back pay awards, *see, e.g., United States* v. *Allegheny-Ludlum Industries, Inc.*, 517 F.2d 826, 852 n.29 (5th Cir. 1975), *cert. denied*, 425 U.S. 944 (1976), is but one example of the judicial response to limitations of employer personnel data.

In light of these factors, together with the fact that the parties' approaches to the data assembly problem are facially reasonable and the fact that the parties' respective data bases are at their core quite similar, a heavy burden must be met before a party can justify the rejection *in toto* of any statistical analyses on grounds of errors or omissions in the data. Identification of flaws is helpful for later use in evaluating the results, but identification is not alone sufficient to warrant rejection. Instead, the challenging party bears the burden of showing that errors or omissions bias the data, *i.e.*, that erroneous or omitted items are not distributed in the same way as items which are present and correct. That party must then show, at the least, that this bias alters the result of the statistical analyses in a systematic way, *i.e.*, that errors or omissions make the models more (in the case of challenges) or less (in the case of the plaintiffs' challenges) likely to show discrimination than would correct and complete data. *See* section VII(c) (introduction). Having established these ground rules, we turn to the specific challenges made by the parties.

1. *Plaintiffs' Challenges.*

The plaintiffs eschewed use of the A035 tape because, in their words, it was "prepared for litigation." That the tape was indeed prepared with this litigation in mind is not seriously questioned by the Bank. Nevertheless, Bank officials have testified that it is their intention to use the A035 tape as a master personnel history tape in day-to-day operations. In particular, they expect the tape to play a role in the preparation and monitoring of future Affirmative Action Plans. Moreover, to say that the tape was "prepared for

litigation" says nothing about its accuracy absent some indication that that fact has resulted in erroneous, omitted, or biased data.

Plaintiffs' expert Dr. Janice Madden questioned the validity of the hiring qualifications data used for availability calculations, arguing that "recall" *ex post facto* of the qualifications for which employees were hired renders those data suspect. While it is true that the primary reason for which an employee was hired was determined after the fact for the purpose of the availability analyses, this classification was not accomplished without objective guidelines. Messrs. Stotts and Barksdale testified that in preparing the breakdown (Defendant's Exhibit 549) they used as a rule of thumb the presence or absence of a degree conferred within the preceding twelve months: those with such a degree were presumed to have been hired for their educational qualifications, and those without such a degree for their experience. Apart from the allegedly subjective nature of the classification process, plaintiffs offer no reason to believe that the classifications were systematically biased in any way.

The plaintiffs finally attack the data obtained through the questionnaire which was submitted to a sample of current Republic employees. They argue that employees who did complete the questionnaire "may not have understood what they were considering," and that those who did not complete it may not have wanted to cooperate in the Bank's defense of this lawsuit. The high participation rates in the questionnaire survey discredit these assertions. Of 313 current employees selected for the questionnaire, 286 (91%) were actually given the questionnaire, the remainder being on vacation, maternity leave, or foreign assignment. Of these 286, 285 (99.7%) completed the questionnaire at least partially, and 268 (93.7%) completed the questionnaire fully. There is no indication that responses from absent or uncooperative employees would have been differently distributed from those of other employees. While it is impossible to know whether the answering employees understood

the questionnaire, the questionnaire is not difficult to understand and those who answered must be presumed to have known what they were doing.[30]

2. *The Bank's Challenges.*

The Bank first challenges the plaintiffs' use of year-end A020 tapes as the source for most of their data. It argues that errors in the year-end tapes will be perpetuated until the next year's tape in the plaintiffs' analyses, while such errors will be corrected in the Bank's analyses by information from the A020 tape for the next payroll period. While this is indeed a flaw in the plaintiffs' data, the court is convinced that it is a minor one: the errors (presumably few in number to begin with) will be propogated only if they happen to appear in the year-end tape, and then only until the next year-end tape. Moreover, no systematic bias has been shown.

The Bank also attacks the plaintiffs' inclusion of hourly employees in the data for some but not all years. The short median tenure of such employees (about one year; Defendant's Exhibit 481) and the small proportion of Bank employees they represent (averaging 160 hourly employees; Defendant's Exhibit 480) suggest that any error caused by their inclusion is small. Again, no systematic bias has been shown.

The Bank's most substantial challenge to the plaintiffs' data focuses on the use of the "highest grade completed" field. For 1973-78, this challenge relies on the results of the A035 audit, *see* n.28, *supra*, which shows an omission rate of 31% and an error rate of 10% for the highest grade completed field. The plaintiffs performed an analysis (Plaintiffs' Exhibit 1308, Tables 11 & 12) which purports to show that errors and omissions in this field display no systematic pattern and hence do not affect the regression results. This attempt must fail, however, since there is no mathematical

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[30]The court does note, however, that two employees asked Dr. Stoikov to read the questionnaire to them during its administration.

way to determine the extent or effect of measurement error. D. Baldus & J. Cole, *Statistical Proof of Discrimination* § 9.11, at 298 (1980). In common sense terms, if correct data were present with which to compare the data which were used, those correct data could have been used in the first place and the problem would never have arisen. The problem with plaintiffs' error/omission analysis is that there is error and omission in *both groups* under comparison: the total Bank population, as to which there is a 31% omission rate and 10% error rate in the highest grade completed field, is compared with the regression sample (total Bank population less those missing one or more critical data items). Not surprisingly, the comparison shows little difference.

For 1969-72, the Bank performed an audit of the manually added fields from the plaintiffs' tape. Results of this audit are shown in the margin.[31] For these years, there is a 12.8% omission rate and a 24.5% error rate in the highest grade completed field. The Bank attributes these flaws to the use of excerpts from personnel jackets rather than the entire jackets, and to imprecision in the translation of high school, college, and graduate degrees into years of education by Dr. Morgan and his coders.

As with other challenges, the Bank has failed to show that these flaws in the data produce any systematic bias. This court does not accept the Bank's assertion that an error rate of, *e.g.*, 10% is alone sufficient to warrant rejection of the data. *See* Defendant's Post-Trial Brief at 65. There is no indication that any errors or omissions are not randomly

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[31]

	Salary		DOB		Education	
	Missing	Wrong	Missing	Wrong	Missing	Wrong
1969	12.5%	6.9%	8.1%	5.0%	12.5%	25.6%
1970	7.5%	7.5%	7.5%	2.5%	9.4%	27.5%
1971	9.4%	8.1%	6.3%	5.6%	9.4%	21.9%
1972	18.8%	2.5%	14.4%	5.6%	20.0%	23.1%
Overall	12.0%	6.3%	9.1%	4.7%	12.8%	24.5%

The data in this table appear in Defendant's Exhibit 553.

distributed among sexes and races[32], or that the errors and omissions caused an overestimate or underestimate of education for any particular racial or sexual group. No guidance is given as to what was treated as an "error": a discrepancy of one year between education as recorded in a personnel jacket and education as recorded on the plaintiffs' tapes is likely recorded as an "error," yet there is no indication of the proportion of such small errors.

The flaws in the plaintiffs' educational data are indeed serious enough to warrant care in evaluating the studies which rely on those data. Those flaws do not, however, warrant the extreme sanction of disregarding the studies as irrelevant. The high proportions of the data which are both present and correct (59% for 1973-78 and 63% for 1969-72) and the even higher proportions of correct data among all included data (86% for 1973-78 and 72% for 1969-72) render the data at least marginally probative of the existence *vel non* of discrimination. *Cf.* Fed. R. Evid. 401.

C. *Technical and Institutional Competence.*

An important question which must be resolved before turning to the analysis of the parties' statistical presentations relates to the proper role of the court in evaluating those studies. Of course, the record on which the court must base its decision consists of the exhibits and testimony, principally the reports and other exhibits prepared by the

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[32]Indeed, Exhibit D to Defendant's Exhibit 553 suggests that errors and omissions *are* more or less randomly distributed among races and sexes, at least for 1969:

EXEMPT

	Black			White			Total		
	M	F	T	M	F	T	M	F	T
% Workforce				94.8	5.0	99.8	95.0	5.0	100.0
% Omitted				98.7	1.3	100.0	98.7	1.3	100.0

NONEXEMPT

	Black			White			Total		
	M	F	T	M	F	T	M	F	T
% Workforce	1.1	10.6	11.7	18.1	62.8	80.9	20.3	79.7	100.0
% Omitted	2.2	8.0	10.2	18.6	61.3	79.9	22.1	77.9	100.0

experts and their live testimony concerning those reports and exhibits. But a nagging question remains: To what extent may (and should) the court, using data contained in the record and mathematical and statistical techniques explained by the experts in their reports and testimony, perform its own calculations? Two limitations on such activity must be examined: the technical competence of the court to perform such calculations; and the extent to which voluminous calculations can be required by a party which did not perform such calculations as part of its trial presentation.

The role of the court as factfinder requires that it bring to its task its own fund of common knowledge and general reasoning ability. To go beyond these sources of decision-making power, however, presents three related dangers. First and foremost among these is the risk of error. Many judges (including this court) have little or no formal training in statistics, econometrics, or higher-level mathematics. True to the aphorism that a little knowledge is a dangerous thing, such a court may be led into the temptation to apply its limited fund of such knowledge to the solution of mathematical problems in the case before it, without a full appreciation of the risks and limitations of the techniques it is employing and without assurance of their suitability for the task to which they are put. Thus the explanation by an expert of a statistical technique or formula and its applicability to a particular problem does not warrant the application of that technique or formula to an unrelated problem, no matter how closely related the two may seem to the uninitiated. Only where the expert has justified the use of an approach for a particular problem, evaluating the risks and limitations of the approach *in the context of the problem*, ought the court to apply the technique in performing calculations not performed in the evidentiary presentation.

An overwillingness to undertake computational efforts also creates the risk of decisional disparity. Courts with varying degrees of inclination and ability in the application

of complex technical approaches to the solution of social problems will reach varying results, and the outcome of cases requiring such application will turn more on the plaintiffs' choice of forum and the luck of the draw in the District Clerk's office than on the merits of the cases. Indeed, absent some neutral and consistently applied approach to computation by the court, a court must risk the accusation that it has picked and chosen among the data, performing or not performing additional computations to suit a preconceived result.

Going too far beyond the calculations performed for and explained at trial is also unfair to the parties. In a typical complex Title VII class action, the parties have by the commencement of trial deposed each other's experts, discovered those experts' reports, counseled with their own experts, explored possible cross-examination, developed rebuttal evidence, and otherwise prepared for the evidentiary onslaught they expect to meet. For the court to appoint itself as an additional statistical expert, *ex parte*, after trial, and without opportunity for challenge by the parties, frustrates the expectations of the parties and diminishes the reliability which the adversary system was designed to insure. Similarly, complex calculations performed for trial but not explained will not receive the benefit of sustained expert scrutiny of their validity and implications, and so cannot be relied upon.

Beyond problems of technical competence are those of what may be referred to as institutional competence. Obviously, a court cannot be called upon to perform multiple regression analyses requiring a computer merely because the raw data which would support such analyses have been introduced into evidence. More generally, the introduction of raw data and the explanation of a statistical technique ought not, at least where the data are voluminous or the technique complex, place the burden on the court to perform the calculations. While the court cannot shirk its duty to review the evidence and decide the case, to require a myriad of calculations based on file cabinets full of statistical exhib-

its would exact not diligence but fanatical devotion to detail. *See* n.117, *infra*.

To say that the court should be reluctant to go far afield from the parties' own calculations does not mean, however, that in all cases the court is hamstrung by a party's failure to perform calculations necessary or helpful to the decision of the case. Where a simple statistical technique has been explained through expert testimony in terms understandable by one with no advanced statistical background, and where the use of that technique has been justified for the problem in question, the performance of simple calculations using the technique is not the creation of new evidence but only a more detailed examination of existing evidence. *Cf. L.C.L. Theatres, Inc.* v. *Columbia Pictures Industries*, 421 F.Supp. 1090, 1103 & n.9 (N.D. Tex. 1976), *rev'd in part on other grounds*, 566 F.2d 494 (5th Cir. 1978) (post-trial summaries permissible where underlying data are in evidence); 75 Am. Jur. 2d *Trial* § 991 (1974) (jury experimentation permissible if effect is not to introduce extraneous evidence); Annot., 95 A.L.R.2d 351 (1964) (same). This type of calculation aids rather than harms the parties, enabling the court to fill gaps created when minor flaws not recognized by the parties are discovered in the data. Limited calculations may alternatively enable the court to transform the parties' statistical data into a form which gives greater insight into the existence of discrimination, a result which likewise ought to be welcomed.

D. *The "Anecdotal Evidence."*

The Second Circuit recently stated that "statistics showing a significantly disparate racial impact have consistently been held to create a presumption of Title VII discrimination." *Guardians Association of the New York City Police Department, Inc.* v. *Civil Service Commission*, 23 Empl. Prac. Dec. ¶ 31,153, at 16,973-74 (2d Cir. 1980). In *Hazelwood School District* v. *United States*, 433 U.S. 299, 307-08

(1977), the Court held that "[w]hen gross statistical disparaties can be shown, they alone may in a proper case constitute prima facie proof of a pattern or practice of discrimination." *See also Johnson* v. *Uncle Ben's, Inc.*, No. 78-1437, slip op. at 422-23 (5th Cir. Oct. 17, 1980).

Like those courts, we make inferences from statistical patterns in this litigation. Indeed, the court *must* rely on such statistical evidence: neither the testimony of individual applicants and employees, nor that of Bank executives,[33] provides in this case a sufficient independent basis for a finding of the presence or absence of class-wide discrimination of the sorts here alleged. *See* section VIII(A), *infra*. Anecdotal evidence does, however, serve a useful function in this case, in light of the principle that tests of statistical correlation cannot by themselves identify the causative factors which produce the observed results. *See* D. Baldus & J. Cole, *supra*, § 9.42, at 320; R. Wonnacott & T. Wonnacott, *Econometrics* 173 (2d ed. 1979). *See generally* F. Mosteller & J. Tukey, *Data Analysis and Regression — A Second Course in Statistics* 260-62 (1977). It serves a useful function as one of the three ways in which the plaintiffs have bolstered the thesis that it is real-world behavior rather than random statistical patterns which causes there to be correlations and modelling results damaging to the Bank. We leave discussion of two of the ways — statistical significance and the use of theory in designing the models — to later sections. *See* section VI(D) nn.58 & 54, *infra;* sections VI(C) and IX(A), *infra*.

The anecdotal evidence — evidence of individual experiences, specific employment practices, and testimony of bank officials — which in itself is not weighty enough to alter the results obtained from the statistical evidence, lends support to the idea that any discrimination found in the statistical analyses is due to discriminatory behavior rather than to chance. *Cf.* Waintroob, *The Developing Law of Equal*

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[33]We refer to both types of evidence collectively as "anecdotal evidence."

Employment Opportunity at the White Collar and Professional Level, 21 Wm. & Mary L. Rev. 45, 96-98 & 103-105 (1979).

While we do not here detail such anecdotal evidence, we have considered all such evidence carefully. That there is such evidence can hardly be challenged. For example, the following exchange took place at the deposition of Thomas G. Croft, Senior Vice President and Director of Personnel:

Q When do you believe that the bank began to be in compliance or began to offer equal employment opportunity to females?

A When? I don't understand your question.

Q Well, my previous questions concerning being in compliance and offering equal employment opportunity to blacks and females, you said something about historically, and then we narrowed it to presently, and you said yes, you believed that you were or that the bank was. Therefore, I presume that you intended that historically perhaps it was not, and I'm saying when did the bank begin, as far as you're concerned, to offer equal employment opportunity to women and to blacks.

A I think we probably began in the early '70's.

Q When you began in the early '70's — excuse me just a minute.

(Off-the-record discussion.)

MS. PETERS: (To the reporter.) What was our last question and answer?

(Thereupon, the last question and answer were read by the reporter.)

A I would, if I may, I'd like to add to that. At least there's been a spiritual change, if you will, in the thinking of the management of the bank which started in the early '70's, and historically these laws and the executive orders are relatively new. So it's difficult to say when it came about or when it started or where we are now, but I must say, to the best of my knowledge, backed up by what the government agencies have to say, that we are in compliance with the law of the land. Again, we've had people like Sharon Jobe, who is vice president and general counsel for the holding company. Sharon has done a lot of things to change people's minds about the capability of a female executive. She's doing some work with the — or she's preparing to do some work with the affiliates of the holding company, again working with Bob Stoller. So I guess maybe spirtually [sic] is not the best word, but it's the one that comes to mind. that change did begin to take place in the early '70's.

Deposition of Thomas G. Croft at 126-27 (December 7 and 8, 1977).[34] *See also* Deposition of Tom Croft at 106-07 (December 9, 1977) and his trial testimony concerning the December 9 answers. Croft's candid remarks form a backdrop to the statistical evidence, to which at long last we now turn.

VI. *The Theory Behind the Parties' Mathematical Modeling*

A. *Introduction.*

Both the plaintiffs and the Bank rely on econometric models rooted in principles of labor economics in order to perform one task: to represent in mathematical terms the Bank's employment practices. Neither side posits that every time a Bank administrator is faced with a personnel deci-

[34] At trial, Mr. Croft testified that his use at deposition of the term "spiritual change" had been inappropriate.

sion he "evaluates each applicant according to a predetermined rule for counting and weighing key characteristics [using a system where] [t]he relevant characteristics are specified in advance, and so is the rule for combining them to produce a score for each applicant."[35] Both parties instead offer models claimed to represent the Bank's behavior on the whole.

The mathematical models draw heavily on quantitative techniques long used by social scientists and more recently used in judicial resolution of antitrust, securities, and employment discrimination disputes. The use of quantitative techniques in this case is unique only in that the techniques used here, especially those involving multiple regressions, are more sophisticated and are more heavily relied on by counsel for both sides than in most litigation. By pushing the techniques to the center of the fray, the parties have compelled the court to examine the techniques' theoretical underpinning -- the "human capital" theory of labor economics and general productivity theory — as well as the operational mechanics of multiple regression itself. Only by doing so will we understand the strengths and limitations of the models, and thus determine whether any particular model offered is sufficient to establish or rebut a *prima facie case*. Once it is determined that a particular model generates probative evidence, the court must determine whether a model represents a behavorial pattern violative of Title VII. For this second step, an understanding of both the mathematical techniques and Title VII are necessary.

Despite the quantitative social science nature of its analysis, the court fashions no new policy based on its own concept of the public good. In attempting to evaluate the

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[35] *Cf.* Underwood, *Law and the Crystal Ball: Predicting Behavior with Statistical Inference and Individualized Judgment*, 88 Yale L.J. 1408, 1420-23 (1979) (distinction between "clinical" approach wherein experienced decisionmakers use subjective judgment to evaluate each applicant on an individual basis in light of experience, and "statistical" approach).

models against the background of an understanding of both the mathematics and the law, we seek to ensure that any hidden value choices are not introduced by the quantitative techniques. We confess to a determination not to reject the unfamiliar for its unfamiliarity, and to a hope that the translation of Title VII equal opportunity doctrine to technocratic terms will make possible more sensitive and accurate detection of the presence or absence of discrimination, as defined not by the court's or the economist's view of public policy but by the court's view of policy set by Congress in the form of Title VII.

Stripped of jargon, the parties are agreed as to the fundamental theory behind the Bank's employment decisions as to compensation, initial placement, and promotion: the Bank treats people differently according to their productivity.[36] The plaintiffs argue that the Bank considers, *in addition*, the racial and sexual group status of the individual. The Bank counters that it does not. In section VI(B), *infra*, we show that Title VII does not proscribe differentiation according to productivity.

In section VI(C), *infra*, we describe the human capital theory, which here provides the intellectual justification for inclusion of productivity-related factors in the mathematical constructs. In section VI(D), *infra*, we describe the mechanics of modeling, with focus on "single equation, ordinary least squares regression" models. Finally, in section VI(E), *infra*, we discuss how particular econometric results can determine whether employees are being treated according to their group-status as well as their productivity.

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[36]We do not suggest that all employment decisions must be based on productivity. *See, e.g., Garcia v. Gloor*, 618 F.2d 264, 269 (5th Cir. 1980) (*e.g.*, Title VII does not forbid hiring only persons born under a certain sign of the zodiac). However, since productivity differences are the bases offered to justify differentials in wages, initial placement, and promotion, our analysis as to these issues similarly focus on the productivity justification under Title VII.

B. *Job Relatedness and Equal Treatment.*

There are two concepts of discrimination employed in interpreting fair employment laws. The first is "equal treatment," a doctrine wherein all persons are to be treated by employers without regard to their racial or sexual group status. It seeks to assure that in competing for jobs a person is not handicapped by his group status. The focus of this concept is upon individuals and acknowledges their varying skills. The second concept is that of "equal achievement." Its focus is not upon individuals with varying skill levels, but is upon the actual distribution of employment among groups. That is, it looks to the results of the contest, not to whether the rules are the same for everyone. Equal achievement subscribers contend that equality of treatment of minorities is spurious rhetoric because minorities remain hobbled by the effects of past discrimination.[37] The choice between these two interpretations is not an academic exercise. Equal achievement subscribers would place on employers the burden of correcting for the disabling effect of societal discrimination such as inadequate education and training. This court is persuaded that in doing so, they would frustrate the stated purpose of Congress.

The construction of "job relatedness," to be discussed more fully herein, turns directly upon the choice between equal treatment and equal achievement. An employer does not discriminate by paying a white more for a higher productivity level in a job than a black otherwise similarly situated. Judicial decisions, although not always true to an equal treatment subscription in their analysis of Title VII cases, generally do not hold to the contrary. The difficulties stem from failure to give to courts accurate measures of

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[37]Comment, *The Business Necessity Defense to Disparate-Impact Liability Under Title VII*, 46 U. Chi. L. Rev. 911, 921 (1979) (*"Disparate-Impact Liability"*); Fiss, *A Theory of Fair Employment Laws*, 38 U. Chi. L. Rev. 235, 237-38 (1971); Note, *Business Necessity Under Title VII of the Civil Rights Act of 1964: A No-Alternative Approach*, 84 Yale L.J. 98, 103 (1974) (*"No-Alternative Approach"*).

productivity of individuals. Left at sea, we simultaneously have recognized that productivity is a valid differentiating factor but have indulged in a tendency to hedge asserted indicators of such productivity with high standards of proof because we recognize that absent accurate measure they contain great potential for masking differentials actually based on race or sex. Excessively high standards of proof have sometimes resulted in adoption of the equal achievement approach by evidentiary default.[38]

The choice between the equal treatment and equal achievement approaches is not for the courts because Congress made that choice when it passed Title VII; and it left an unequivocal record that its choice was critical to the very enactment of the legislation. Congress had equal treatment in mind and the courts cannot, if they accept institutional limitations of a tripartite government, do otherwise — either directly or by unspoken decisions that erode the premise, whether done intentionally or unwittingly.

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[38]This tension between recognizing the right of employers to differentiate on the basis of qualifications and the difficulty of avoiding its potential for abuse was evident in the passage of Title VII. Senator Tower offered an amendment directed at permitting the use of ability tests even when standardized on advantaged groups. *No-Alternative Approach, supra* n.37, at 104 n.31. His first proposal was rejected as being too loosely drawn, but passed when drawn more narrowly. *See* 111 Cong. Rec. 13724, 13492 (1964); *Griggs v. Duke Power Co.*, 401 U.S. 424, 434-36 (1971). Senator Tower's immediate focus was upon a narrow part of the problem of skill measures — the written test — and represented an effort to preserve the right of employers to test for differing skill levels. Even these were so suspect that the amendment, resulting EEOC guidelines, and some judicial decisions construing the amendment have imposed such stringent burdens of validation as to undermine the entire effort. That is, the effect of placing the burden upon employers of proving that various predictors or criteria they used were true productivity factors when direct measures of productivity were not available has been at times to cause Title VII to operate as if Congress had actually subscribed to equal achievement with a resultant focus upon group status, not individual abilities.

Title VII was directed solely at unequal treatment of individuals;[39] it was not intended to infringe on independent decision-making based on reasons of business efficiency as long as the employer did not take the group status of the individual into consideration.[40] Senators Clark and Case, floor managers of Title VII, stated in an interpretative memorandum:

> It has been suggested that the concept of discrimination is vague. In fact it is clear and simple and has no hidden meanings. To discriminate is to make a distinction, to make a difference in treatment or favor, and those distinctions or differences in treatment or favor, which are prohibited by section 704 are those which are based on any of the five forbidden criteria: race, color, religion, sex and national origin . . . .

110 Cong. Rec. 7213 (1964), *quoted in No-Alternative Approach, supra* n.37, at 103 n.29. Responding to opponents of Title VII, who were concerned that the bill would lead to quotas and other equal achievement oriented reactions, the supporters stated:

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[39]*See Disparate-Impact Liability, supra* n.37, at 926-28; *No-Alternative Approach, supra* n.37, at 103 n.29.

[40]"Congress clearly intended to impose on employers any potential loss of efficiency resulting from the inability to use race as an employment qualification." *No-Alternative Approach, supra* n.37, at 102-03. The pernicious effects of using race and sex as predictors of an individual's actual characteristics are so deleterious that even where an employer may find it efficient to use race and sex, he may not legally do so. *Cf.* Fiss, *supra* n.37, at 241-43 & 257-63; Brilmayer, Hekeler, Laycock, & Sullivan, *Sex Discrimination in Employer-Sponsored Insurance Plans: A Legal and Demographic Analysis*, 47 U. Chi. L. Rev. 505, 526-29 (1980); Underwood, *supra* n.35, at 1434-36.

Under most, but not all, circumstances, the prohibition of discrimination is fully consistent with maximization of productivity for the individual businessman and for society. *See* Fiss, *supra*, n.37, at 257-63. *But see* Gwartney, Asher, Haworth, & Haworth, *Statistics, the Law and Title VII: An Economist's View*, 54 Notre Dame L. Rev. 633, 637 n.11 (1979).

> The language of . . . [Title VII] simply states that race is not a qualification for employment. Every man must be judged according to his ability. In that respect, all men are to have an equal opportunity to be considered for a particular job . . . .
>
> . . .
>
> . . . It is possible that although a . . . particular business will contain no Negroes, no charge of discrimination will be made. But businesses . . . may not systematically exclude Negroes, when the only ground for exclusion is the color of a man's skin.

110 Cong. Rec. 8921 (1964), *quoted in Disparate-Impact Liability, supra* n.37, at 927. Senator Case also explained:

> Whatever its merit as a socially desirable objective, title VII would not require, and no court should read title VII as requiring, an employer to lower or change the occupational qualifications he sets for his employees simply because proportionately fewer Negroes than whites are able to meet them . . . [nor would it require lower standards] because prior cultural or educational deprivation of Negroes prevented them from qualifying . . . .
>
> [T]he very purpose of title VII is to promote hiring on the basis of job qualifications, rather than on the basis of race or color.

Id. at 928.

The concept of job relatedness, born in *Griggs*, v. *Duke Power Co., supra* n.38, is an application of the equal treatment philosophy. In *Griggs*, the Supreme Court held that an employment practice nondiscriminatory on its face, but which has a disparate impact on a protected class, is illegal under Title VII unless the employer can show the practice is a "business necessity." *Griggs* struck down the require-

ment of a high school diploma and satisfactory aptitude test scores for hiring into supervisory jobs because the employer showed "no demonstrable relationship to successful performance" of the requirements in the jobs for which they were used. 401 U.S. at 431. As the Court stated, Title VII prohibits "practices that are fair in form, but discriminatory in operation. The touchstone is business necessity. If an employment practice which operates to exclude Negroes cannot be shown to be related to job performance, the practice is prohibited." *Id.* at 431. Duke Power Company's qualifications were unrelated to efficiency, being surrogates for a direct racial criterion. *See Disparate-Impact Liability, supra* n.37, at 929. The Court's chief concern was not equal achievement, but equality of treatment. *Id.* Later Supreme Court cases confirm the equal treatment interpretation of Title VII. *Id.* at 930-33.[41]

The bare words "business necessity" have been interpreted as involving more than "business purpose," under which a practice can be justified by showing that any benefit accrues to the employer through the use of the practice. *No-Alternative Approach, supra* n.37, at 100. The typical formulation of the rule is that the practice must be one that is essential to the safe and efficient operation of the business. *Disparate-Impact Liability, supra* n.37, at 916, 918-19.

While some commentators assert that the requirement of more than business purpose to justify the use of a race-correlated practice is more consistent with equal achievement than with the equal treatment interpretation of Title VII,[42] this is not always true for two reasons. First, while

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[41] *Cf. Smith v. Olin Chemical Corp.*, 555 F.2d 1283, 1286-88 (5th Cir. 1977) (employer does not have to justify with evidentiary proof of business necessity the exclusion of any person with a bad back as a laborer).

[42] *See, e.g., id.*

a particular race- or sex-correlated predictor[43] may indeed be indicative of productivity (and thus one that would have business purpose), the racist or sexist employer may be placing a heavier emphasis on that predictor than would a non-racist or non-sexist employer.[44] Thus, if the possessor of a particular degree is marginally more productive — if, for example, he is worth twenty cents an hour more — but if the racist or sexist employer pays not twenty cents an hour more, but fifty cents an hour more or even refuses to hire those without the degree, then the inference that the employer is using the predictor as an excuse for paying one group more is both rational and fair. Second, if there is an alternative predictor available which would serve equally well with lesser disparate impact, then to use the initial predictor would have undue impact on minorities not justified by productivity considerations. *Cf. No-Alternative Approach, supra* n.37, at 115-16; *Parson v. Kaiser Aluminum & Chemical Corp.*, 575 F.2d 1374, 1389 (5th Cir. 1978), *cert. denied*, 441 U.S. 968 (1979).

On the other hand, a "balancing" approach, wherein a court balances the impact on an employer of disallowing a practice and the impact on blacks or females of allowing the practice, is not consistent with the equal treatment construction of Title VII. *Cf. No-Alternative Approach, supra* n.37, at 101 & 119. For instance, in *Bing* v. *Roadway Express, Inc.*, 444 F.2d 687, 690 (5th Cir. 1971), the court appears to have compared the benefits accruing to the employer from the use of a practice and the extent of the disparate impact — a mixed equal treatment-equal achievement

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[43]Throughout this opinion we employ the term "predictor" broadly; it refers to any factor or attribute used by the employer, consciously or unconsciously, in differentiating among employees or applicants. For instance, a requirement of a college degree is a predictor, just as a variable in a multiple regression model for compensation is one as well.

[44]This is one aspect of "improper treatment across twins," referred to in section VI(E), *infra*.

approach. *See Swint* v. *Pullman-Standard*, 624 F.2d 525 (5th Cir. 1980); Note, 12 Ga. L. Rev. 104, 106 N.12 (1977). Often, these courts are looking at equality of results not because they fail to adhere to the equal treatment interpretation of Title VII, but because they were not presented with sophisticated quantitative indicators of equality of treatment itself, and so had to make do with looking at results. This court, however, having direct quantitative evidence of whether there has been equality of treatment, need not deviate from such an interpretation. This court will, and must, adhere to the equal treatment philosophy intended by Congress.

We defer discussion to section VI(E), *infra*, of the specifics of how econometric modeling may indicate whether differential treatment is due entirely to productivity differences or to group status as well. We can, however, describe intuitively three ways in which such non-productivity-based behavior may manifest itself. First, the mathematical relationship found may indicate that a non-job-related or otherwise improper predictor is being used as a basis for differentiation. Second, the mathematical relationship found may indicate that even though a black and white are identical in all productivity-characteristics, they are being treated differently ("unequal treatment of twins"). Third, though such identical blacks and whites may be treated equally, the productivity characteristics disproportionately possessed by the favored group may be rewarded more than they would be rewarded by a nonracist (or nonsexist) employer (an aspect of "improper treatment across twins"). *See* section VI(E), *infra*.

C. *Controlling for Productivity.*

As earlier stated, the fundamental behavioral assumption of both the plaintiffs and the Bank is that the Bank treats people with different productivities (or true indicators of productivity) differently. Thus the mathematical models are designed to determine if there is any differential treatment not entirely attributable to such productivity differences.

The productivity of an individual is gauged, in part, by those observable characteristics, such as schooling, thought to affect productivity. *Cf.* Gwartney, Asher, Haworth, & Haworth, *supra* n.40, at 636-37.

The plaintiffs' experts explicitly rely on what is called "human capital theory" to determine what observable characteristics ought to be controlled for in their multiple regression models. *See* Plaintiffs' Exhibit 504, at 1; Testimony of Dr. Janice Madden at 11. *See generally* Sahota, *Theories of Personal Income Distribution: A Survey*, 16 J. Econ. Lit. 1 (1978); *Blaug, The Empirical Status of Human Capital Theory: A Slightly Jaundiced Survey*, 14 J. Econ. Lit. 827 (1976); P. Samuelson, *Economics* 751-52 (11th ed. 1980). Dr. Blau explained the theory behind her modeling as follows:

> Economists define wage (or salary) discrimination as occuring when pay differences between groups exist that cannot fully be explained by productivity differences between those groups. (Becker, 1957). This definition matches our intuitive or common sense view that if one individual is more productive than another, he or she is entitled to higher pay. However, pay differences that cannot be explained by productivity differences are suspect, especially if they are associated with race and/or sex differences.
>
> One problem with applying this definition of salary discrimination is that firms generally do not keep records of employees' productivity (e.g., output per work hour). Indeed in some industries, like banking, employee output would be very hard to measure. For this reason, economists generally focus upon the characteristics of individuals that make one more or less productive than another, rather than upon productivity itself. *The human capital theory* (Becker, 1964; Mincer, 1973) is a widely accepted analysis of the determinants of earnings differences among individuals. The theory focuses upon the investment that individual

workers and their employers make that increase the workers' knowledge and skills and thus make them more productive. The following factors are particularly important:

(1) Increases in knowledge and skills through formal education (generally measured by years of schooling).

(2) Increases in knowledge and skills through informal training acquired on-the-job. This is of two types:

   (a) General training which is useful in a variety of firms (generally measured by years of labor market experience).

   (b) Specific training which is useful only in the firm in which the training is acquired (generally measured by years of experience with the firm).

Thus, human capital theory also leads us to some common sense conclusions. If one individual has more education and experience than another, he or she is probably entitled to higher pay (with the size of the pay difference depending on the size of the difference in education and experience). However, pay differences in qualifications are suspect, especially if they are associated with race and/or sex differences. Economists generally attribute such unexplained pay differences to *discrimination.*

How does such salary discrimination arise? Two major mechanisms have been identified:

(1) UNEQUAL PAY FOR EQUAL WORK. Pay differentials among individuals with similar qualifications that are due to pay differences within occupational categories.

(2) UNEQUAL WORK. Pay differentials among individuals with similar qualifications that are due to differences in occupational distributions (i.e., differences in access to occupations on the basis of race and/or sex). Such discrimination in access to occupations may be due to discriminatory hiring and/or promotion policies of the firm.

Plaintiffs' Exhibit 504, at 1-2.

The Bank's principal expert, Dr. Stoikov, similarly offers multiple regressions which control for characteristics a productivity-minded employer might wish to use as predictors. For instance, as to her compensation analysis, Dr. Stoikov stated:

> Sex- or race-related pay disparities are estimated using a model which relates an employee's pay to those characteristics which are thought to influence the quantity and quality of his/her work. These characteristics include the skills an individual brings to his/her employment at the time of hire that have been acquired through education and previous employment experience, the skills an individual has acquired since the time of hire, and an individual's motivation to be productive at his/her present job assignment and to assume future assignments which entail larger amounts of responsibility, skill and effort.
>
> Individuals bring different quantities and types of skills to their employment, as well as different degrees of willingness to acquire new skills or to assume additional responsibilities. Moreover, when these factors are averaged separately for men and women (nonblacks and blacks) differences usually are observed. Therefore, we can anticipate that there will be a difference in the average pay of men and women (nonblacks and blacks) that reflects the differences in the quantity and quality of work-related characteristics they possess. This difference is not attributable to their employer's discriminatory behavior, but rather is an expected pay disparity

> attributable to differences in employee-determined, work-related characteristics. Remaining sex- or race-related pay disparities are pay differences that cannot be related to male/female (nonblack/black) differences in these employee-determined, work-related characteristics. They may or may not stem from an employer's discriminatory behavior.

Defendant's Exhibit 32, at 16-18 (footnote omitted).

D. *The Mathematics of Regression Analysis.*

In today's society, among those who claim special insight denied the common run of men, the "esoteric language is mathematics; the special means of inspiration, the computer, the forbidden path of truth, science." B. Ackerman, *et. al.*, *The Uncertain Search for Environmental Quality* 1 (1974). Econometricians — who with multiple regression analysis can provide an important addition to the judicial toolkit necessary for reconstructing from bits and pieces of data the framework of past events — are no exception.

The practical use of multiple regression has grown markedly over the past 25 years due to the development of statistical methodology itself, increasing availability of statistical data, and most importantly, the development of the computer. Fisher, *Multiple Regression in Legal Proceedings*, 80 Colum. L. Rev. 702, 702 (1980). Regression analysis is increasingly being used in legal proceedings and commentary. *Id.*; *Statistical Evidence on the Deterrent Effect of Capital Punishment: Editors' Introduction*, 85 Yale L.J. 164, 167 n.15 (1975). To record this court's understanding, correct or not, of the regression analyses presented by the experts in this case, and the limitations of those analyses — an understanding made necessary by technically complex trial challenges to their validity — we here describe how they are used, how they work, and when they do not. *Cf. id.* at 167 n.15 & 169; Fisher, *supra*, at 702.[43]

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[43]The following discussion of the mathematics of regressions draws heavily, in terms of both structure and content, on Fisher, *supra*.

1. *Uses of Multiple Regression.*

The two primary uses of multiple regression analysis can be illustrated through the following examples where such analyses have actually been used:

> (i) For years after the disappearance of coal-burning locomotives, there was dispute on the preservation of the jobs of railroad firemen. One issue was whether the presence of a fireman on trains contributed to railroad safety.
>
> (ii) Cable television systems (CATVs) have been involved in administrative proceedings where one issue is the magnitude of the effect of the entry and activity of CATVs upon the profits and growth of broadcast television stations. This issue presents such questions as the influence of CATVs on the viewing audience of particular stations and the effect of changes in a station's audience on its revenues. Of course some claim that such effects are small while others insist they are large.

Fisher, *supra*, at 703.[46]

In the first case, multiple regression is being used to "test hypotheses" — does a particular variable[47] (presence or

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[46]There is a third, less widespread use to multiple regression which we will not here discuss.

[47]A variable is something that can take on different values. Since each variable can assume various values, it must be represented by a symbol instead of a specific number. For instance, we might represent price by P and imports by I. When we write P=3 or I=18, however, we are "freezing" these variables at specific values (in appropriately chosen units). A. Chiang, *Fundamental Methods of Mathematical Economics* 9 (2d ed. 1974).

Variables often appear in combination with "constants," such as in the expression 7P or 18.5I. A "constant" is some number that does not change, and hence is the opposite of a variable. When a constant is joined to a variable, it is often referred to as the "coefficient" of that variable. We can let a symbol (for instance, "a") stand for a given constant; when symbols are used to designate constants, we often refer to them as "parameters." *Id.*

absence of firemen) have *any* effect on some other variable (railroad safety). In the second case, multiple regression is being used for "parameter[48] estimation" — there being little doubt that audience size affects television revenue, and the real question being *how much*. Fisher, *supra*, at 704.

Both the firemen and CATV cases above involve "conditional forecasting" — a prediction of what will happen to the "dependent variable"[49] (such as railroad safety) if an "independent variable"[50] (such as the number of firemen) is changed or, looking retrospectively, what would have happened to the dependent variable had the value of an independent variable been different. Fisher, *supra*.

Determining whether firemen do affect railroad safety faces two difficulties in the absence of multiple regression analyses. First, the factor whose influence one wishes to test or measure is usually not the only major factor affecting the dependent variable. Thus, for instance, the amount of traffic on the railroads affects accidents as well. If we could make controlled experiments, it would be easy to quantify the relationship. A controlled experiment here would involve varying number of firemen, traffic on railroads, and the other variables expected to affect the number of accidents one at a time, holding everything else constant and observing the resulting number of accidents. This would be difficult and costly. We are left then with analyzing nature's experiments. *See id.* at 705; *cf.* R. Wonnacott & T. Wonnacott, *Econometrics* 7 (2d ed. 1979). Second, even if the effects of other systematic factors can be accounted for, there typically remain elements of chance. *Id.* Falling objects follow a physical law, but the behavior of individuals does not. *Cf.* R. Wonnacott & T. Wonnacott, *supra*, at 6.

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[48] *See* n.47, *supra*.

[49] Dependent variables are also referred to as "endogenous" variables. *See* G. Maddala, *Econometrics* 5 (1977).

[50] Independent variables are also referred to as "exogenous variables" or "explanatory variables." *Id.; Editors' Introduction, supra.*

2. *Econometrics and the Ordinary Least Squares Form of Multiple Regression Analysis.*

Put in more formal terms, econometrics may be viewed as the science of model building, using quantitative tools used to construct and test mathematical representations of parts of the real world. R. Pindyck & D. Rubinfeld, *Econometric Models and Economic Forecasts* xi (1976). The fundamental underpinning of econometrics is the basic idea of relationships among economic variables. Relationships are grouped to form a model, the number of relationships included in an economic model depending on the objectives for which the model is constructed and the degree of explanation that is being sought.[51]

The models presented in this case involve, for the most part, one type of econometric modeling. They are "single-equation regression models." R. Pindyck & D. Rubinfeld, *supra*, at 1. Most of the single equation regression models are of a common variety: the behavior of the "endogenous" variable (a variable determined within the economic system under study) is assumed to be a linear function[52] of a set of "exogenous" variables (those determined outside the sys-

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[51]For instance, the classic supply and demand model seeks to explain the sales of a commodity in a particular market in relation to price; it consists of three equations, namely, a demand equation, a supply equation, and a market adjustment equation. These equations will contain other variables in addition to the quantity and price of the commodity in question, such as disposable income in the demand equation and factor prices in the supply equation. The explanation achieved by the model is then conditional on the values of these other variables, variables which are not determined or explained by the model. J. Johnston, *Econometric Methods* 2 (2d ed. 1972).

[52]We use the term "linear equation" or "linear function" for any relationship such as $Q = cA + fB + gC$ where Q, A, B, and C are all variables and c, f, and g are all constants. *See* W. Baumol, *Economic Theory and Operations Analysis* 14-15 (3d ed. 1972).

tem),[53] and the variables are assumed to possess certain other properties such that the convenient "ordinary least squares" method of estimating the relationships among those variables can be used. R. Pindyck & D. Rubinfeld, *supra*, at 1, 225; *Editors' Introduction*, *supra*, G. Maddala, *supra* n.49, at 5; R. Wonnacott & T. Wonnacott, *supra*, at 334-35.

Multiple regression begins by specifying the major variables believed to affect the dependent variable. Fisher, *supra*, at 705. For instance, in our railroad example, we may wish to include as explanatory variables the number of firemen and the amount of railroad traffic, using as the dependent variable the number of railroad accidents. This involves using independent variables which reflect the important or systematic influences that may affect railroad safety. The "minor influences" are placed in a "random disturbance term," treating their effects as due to chance. *Id.* at 705-06. The relationship between the dependent variable and the independent variable of interest — for example, the relationship between the number of accidents and the number of firemen — is then estimated by culling the effects of the other major variables. Multiple regression is thus a substitute for controlled experimentation. *Id.* at 706. The results of multiple regressions — such as what we will call "coefficients" in the ordinary least squares methodology — can be read as showing the effect of each independent variable on the dependent variable, holding the other independent variables constant. Moreover, relying on statistical inference, one can make statements about the probability that the effect described is due only to a chance fluctuation. *Cf. id.*

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[53]Certainly in a broad sense almost all variables are endogenous and the only exogenous variables one can think of are such things as weather. But in any particular econometric study, this is a matter of approximation. For instance, while studying the demand for gasoline by households, we can treat the quantity demanded as endogenous and income and price as exogenous, arguing that the household does not have control over these. G. Maddala, *supra* n.49, at 5.

Central to the validity of any multiple regression model and resulting statistical inferences is the use of a proper procedure for determining what explanatory variables should be included and what mathematical form the equation should follow. The model devised must be based on theory, *prior to* looking at the data and running the model on the data. If one does the reverse, the usual tests of statistical inference do not apply. And proceeding in the direction of data to model is perceived as illegitimate.[54] Indeed it is important in reviewing the final numerical product of the regression studies that we recall the model's dependence upon this relatively intuitive step.

a. *Estimating Multiple Regressions.*

If the relationship of interest is to include only one independent variable ("x_1") to explain the behavior of a dependent variable ("Y"), and it is believed that the relationship of Y to x_1 is a straight line, then the relationship is expressed mathematically as:

(1) $Y = a + b_1x_1$

where a and b_1 are constants, Y is the dependent variable, and x_1 is the independent variable. Diagrammatically, the relationship is illustrated by the straight line in Figure 1. The econometrician thus seeks to determine the value of "a" (called the "intercept" or "constant") and the value of "b_1" (the "coefficient" or "slope" of x_1). Once he obtains these two numbers, for any value of x_1, he would know the exact value of Y. *See* G. Maddala, *supra* n.49, at 74; J. Johnston, *supra* n.51, at 122. Because there are random influences in life, it is unlikely that the relationship between

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[54]*See* G. Maddala, *supra* n.49, at 127; R. Wonnacott & T. Wonnacott, *supra*, at 88-90. *Cf.* Fisher, *supra*, at 714-15 ("[A] properly done study begins with a decent theoretical idea of what variables are likely to be important . . . [A] study that casts about for a good-looking relationship by trying all sorts of possibilities is very likely to come up with relationships where none exist.").

Y and x_1 will be so exact. Instead, plotting values of Y against values of x_1 will likely produce a scatter of points as in Figure 2. Thus the correct relationship is not described by equation (1) but instead by:

(2) $Y = a + b_1x_1 + u$

Figure 1

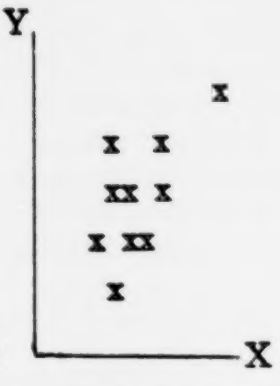

Figure 2

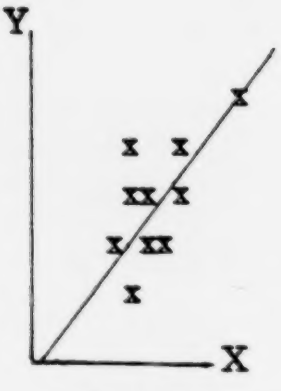

Figure 3

where u represents random influences and is called the "residual" or "error." *See* G. Maddala, *supra* n.49, at 74. The econometrician attempts to cut through the noise generated by these random disturbances and extract the "signal" — that is, the line around which the points are scattered. He passes the line through the points so that it is as close as possible to the scatter of points, in the sense that the sum of the squared deviations between the predicted and actual Y values is minimized. Not inappropriately, this is called "least squares regression." G. Maddala, *supra* n.49, at 75. *See* Figure 3.

In general, numerical estimates of a and b_1 are obtained by entering the scatter of points in a computer programmed to perform "least squares" calculations. These empirical estimates, based on the relatively crude "least squares" method of processing empirical observations, will be "good" — in that they are likely to be quite close to the true values — if and only if certain assumptions hold as to

the nature of and relationship among the dependent variable, the independent variable(s), and the error term. *See, e.g.*, R. Pindyck & D. Rubinfeld, *supra*, at 20-24, 55; R. Wonnacott & T. Wonnacott, *supra*, at 55-69; J. Johnston, *supra* n.51, at 126; J. Kmenta, *Elements of Econometrics* 9-14, 161 (1971).[55]

Regressions involving more than one explanatory variable (*e.g.*, number of firemen as well as railroad traffic) are more frequently used and are known as "multiple regressions." *Id.*; R. Wonnacott & T. Wonnacott, *supra*, at 71. To illustrate, we may assume that there is a suspected relationship between Y, the dependent variable, and the explanatory variables, x_1, x_2, x_3, . . . x_k such that:

$$(3)\quad Y = a + b_1x_1 + b_2x_2 + b_3x_3 + \ldots + b_kx_k + u$$

where a, b_1, b_2, b_3, . . . b_k are constants. As with a model with only one explanatory variable, a is called the intercept or constant; b_1, the coefficient of x_1; b_2, the coefficient of x_2; and so forth; and u, the "error term" or "residual."[56] When empirical observations are placed in the computer programmed to do least squares manipulations (just as we input the "points" in the model with one explanatory variable), it will generate numerical estimates of a, b_1, b_2, . . . b_k based on how the dependent variable changes when the independent variables move in a variety of ways. *Cf.* Fisher, *supra*, at 712. These numerical estimates of b_1, b_2, b_3, . . . b_k, are analogous to the b_1 in Figure 3. When only one explanatory variable is used, b_1 is the slope of the line: that is, it tells us how much Y will change for a unit

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[55]We will discuss these "structural assumptions" when we discuss the situations in which the least squares estimates may be unreliable. *See* Fisher, *supra*, at 708-11; D. Baldus & J. Cole, *Statistical Proof of Discrimination* §§ 8A.2-8A.43, at 276-86 (1980).

[56]This is not strictly correct, however, the distinction between a "disturbance term" and the "error" or "residual" is unimportant for our purposes. *See* J. Johnston, *supra* n.51, at 123.

change in the value of x_1. With a multiple regression, b_1 tells how much Y will change for a unit change in the value of x_1, holding the other explanatory variables constant; b_2 is the change in Y corresponding to a unit change in the value of x_2, holding the other explanatory variable constant; and so forth. Thus if the proper model for railroad safety were described by:

$$(4)\quad Y = a + b_1x_1 + b_2x_2 + u$$

where Y is the number of railroad accidents, x_1 is the number of firemen, and x_2 the miles of railroad traffic, we can "run" this model on the appropriate data, and obtain, for example, $Y = 50 - \frac{1}{2}x_1 + \frac{3}{4}x_2$. This equation tells us, among other things, that with each additional fireman, the number of railroad accidents is reduced by ½ of an accident, while with each additional mile of railroad traffic, the number of railroad accidents is increased by ¾ of an accident.[57]

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[57] "Dummy variables" are sometimes used as explanatory variables. *See* R. Wonnacott & T. Wonnacott, *supra*, at 100-103 (use of dummy variable "1" for wartime and "0" for peacetime, in econometric modeling of sales of government bonds).

> When some explaining factors assume only discrete values (such as "male" or "female") and others assume continuous values (such as age expressed in years, or, better, in months), a middle course between ANOVA and regression can be effected by the use of multiple regression with "dummy variables." A dummy variable is given the values zero and one to correspond with the presence or absence of a particular attribute. For example, a regression could estimate an employee's wage by using the employee's years of work experience, years of education, and a dummy variable to reflect whether the employee were male. The weighting on the dummy variable would not be as readily interpretable as a weighting on a more usual type of explaining characteristic, but the question of the overall effect of the characteristic represented by the dummy variable could be answered.
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> Note, *Beyond the* Prima Facie *Case in Employment Discrimination Law: Statistical Proof and Rebuttal*, 89 Harv. L. Rev. 387, 399 (1975) (footnote omitted) (*"Beyond the* Prima Facie *Case"*).

b. *Statistical Inference.*

With certain assumptions about the particular probability distribution of the error term, one can go beyond estimating effects of independent variables on the dependent variable to gauging the certainty or accuracy of those effects. Fisher, *supra*, at 716; G. Maddala, *supra* n.49, at 79. For instance, one can perform calculations that support statements about the range of values likely to contain the true coefficient of any of the explanatory variables.

In particular, one can determine the size of the interval on either side of the estimated coefficient which has a given probability *(e.g.*, .95) of containing the true parameter. This range of variables is referred to as a "confidence interval." R. Pindyck & D. Rubinfeld, *supra*, at 31. For example, after performing the appropriate calculations, we might find that there is a 95% chance that the true coefficient of firemen in our railroad example is larger than ¼ and smaller than ¾. In other words, the 95% confidence interval for the firemen coefficient is ½ ± ¼.

One can also perform calculations to test the hypothesis, at a given level of statistical significance,[58] that the true

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[58]As this court explained in *Cooper* v. *University of Texas*, 482 F.Supp. 187, 194 (N.D. Tex. 1979):

> With a test of statistical significance we learn the probability that the observed value could have happened by chance, *i.e.*, the probability that in a random sample of an appropriate test population the variable would exhibit value as extreme as that observed. A test of statistical significance is thus itself based on the results of a hypothetical experiment. We suppose that an infinite number of samples of the same size are drawn from the test population. The probability of the observed value occurring by chance is equal to the proportion of the samples in which the value is at least extreme as the observed value. It has become a convention in social science to accept as statistically significant values which have a probability of occuring by chance 5% of the time or less. *See generally* N. Nie, C. Hull, J. Jenkins, K. Steinbrenner, & D. Bent, *Statistical Package for the Social Sciences* 222 (2d ed. 1975).

coefficient is actually zero; that is, that the independent variable to which it corresponds has no effect on the dependent variable. Fisher, *supra*, at 717. If what is known as the "t-statistic" for the particular coefficient is large enough, then we can reject the hypothesis that the true coefficient of the variable in question is equal to zero. *See* R. Pindyck & D. Rubinfeld, *supra*, at 31; R. Wonnacott & T. Wonnacott, *supra*, at 86. For example, if a 5% level of significance is used, a sufficiently large t-statistic for the coefficient indicates that the chances are less than one in 20 that the true coefficient is actually zero. Fisher, *supra*, at 717. The magnitude of the t-statistic necessary to reject such hypothesis varies with the desired level of significance. Thus the t-statistic would need to be larger with a 5% level of significance than with a 10% level of significance.

The magnitude of the t-statistic is also dependent on the particular type of hypothesis to be tested. When an analyst uses a "two-tailed hypothesis" — that is, where he wishes to determine whether there is *any* relationship, positive or negative, between the independent and the dependent variable — a t-statistic of approximately two means (in the case of large samples) that the chances are less than one in 20 that the true coefficient is actually zero. *Cf. id.* An explanatory variable is, however, usually included in the equation because of a prior theoretical reason for expecting it to affect the dependent variable in a specific direction. R. Wonnacott & T. Wonnacott, *supra*, at 86. For instance, we expect additional firemen to decrease, not to increase, the number of accidents. In such situations, we test a more specific hypothesis — a "one-tailed hypothesis" — not whether or not a particular coefficient is positive or negative as with the two-tailed test, but whether or not, in our railroad example, it is negative or zero. In this circumstance, the "one-tailed test" is one in which 5% would be the probability of observing some *negative* coefficient if the true value were zero. *Cf.* Fisher, *supra*, at 717 n.26. *See also* n.148, *infra*. The t-statistic required for significance at the 5% level on a one-tailed test is only approximately 1.6. Fisher, *supra*, at 717 n.26.

Speaking purely from a statistical point of view, this does not mean that only results significant at the 5% level should be considered; less significant results may be suggestive. *Id.* at 718-19. Thus even if the t-statistic is small for a particular dependent variable, this does not mean there is no relationship between that dependent variable and the independent variable. R. Wonnacott & T. Wonnacott, *supra*, at 88. This is so because the size of the t-statistic corresponding to statistical significance is ultimately dependent on the level at which statistical significance is arbitrarily set. "The most commonly used significance level is five percent, but this is purely arbitrary." G. Maddala, *supra* n.49, at 45. It follows that in many instances, reporting only whether a particular coefficient is significant or not should be avoided; it is more informative to report confidence intervals, test statistics, or other quantitative measures of significance. *Id.* at 45-46.

Moreover, significance tests and confidence intervals are controversial when the test data includes an entire universe of decisions. For example, in a promotion case, data on every promotion decision may be available, rather than a mere random sample of such decisions. When all such data are available, some statisticians argue that statistical tests are either meaningless or misleading, while others say that they can be useful. D. Baldus & J. Cole, *supra* n.55, § 9.32, at 316. *See also* Testimony of Dr. John Spaulding, Jr., at 1094-95; Johnson Post-Trial Brief at 4 n.4.

Considering the arbitrary nature of the adoption of the 5% level of significance, it is not surprising that courts show flexibility in determining what level of significance to be required in a legal context. *Cf.*, *e.g.*, *United States* v. *Georgia Power Co.*, 474 F.2d 906, 915 n.11 (5th Cir. 1973); D. Baldus & J. Cole, *supra* n.55, § 9.221, at 308 n.36 & § 9.41, at 318. *See generally* section IX(A), *infra*. Indeed, the Fifth Circuit has specifically stated that a 10% level of significance rather than the statisticians' more conventional and more stringent 5% level "*might* be acceptable" in the context of the validity of job tests under Title VII. *Watkins* v. *Scott Paper Co.*,

530 F.2d 1159, 1187 n.40 (5th Cir.), *cert. denied*, 429 U.S. 61 (1976) (emphasis in original).[59]

Statistical tests more elaborate than t-statistics and confidence intervals for individual coefficients are also available. For instance, "R^2" is often calculated; this is a statistic which provides an overall index of how well Y can be explained by *all* the independent variables, that is, how well a multiple regression fits the data. R. Wonnacott & T. Wonnacott, *supra*, at 180-81. The higher the R^2, the greater the association between movements in the dependent and independent variables. Fisher, *supra*, at 720. There are problems, however, associated with the use of R^2. A high R^2 does not necessarily indicate model quality. *See* R. Pindyck & D. Rubinfeld, *supra*, at 58; G. Maddala, *supra* n.49, at 122-24. *Cf.* Fisher, *supra;* D. Baldus & J. Cole, *supra* n.55, § 8.22, at 266-67. For instance, the addition of more explanatory variables to the regression equation can never lower R^2 and is likely to raise it. Thus one could increase R^2 by simply adding more variables, even though, because of "over-inclusion" and "multicollinearity" (terms we will later describe) it may be improper econometrically to do so. *Cf.* R. Pindyck & D. Rubinfeld, *supra*.

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[59]We are discussing the concept of statistical significance, not "practical significance:"

> A measure of statistical significance . . . provides a basis for inferring whether there is, in fact, some disparity in results for the minority and majority groups. Practical significance, in contrast, refers to the magnitude of the disparity between the results for the two groups. This information is conveyed by the measure of disproportionate impact and provides a basis for assessing the level of injury to the minority group.

D. Baldus & J. Cole, *supra* n.55, § 9.41, at 317 (footnote omitted).

In Title VII cases, "[t]he degree of discrimination practiced by an employer is unimportant . . ."; [d]iscriminations come in all sizes and all such discriminations are prohibited by the Act." *Rowe v. General Motors Corp.*, 457 F.2d 348, 354 (5th Cir. 1972). *See Hodgson v. American Bank of Commerce*, 447 F.2d 416, 420 (5th Cir. 1971).

3. *What Can Go Wrong?*

A "perfect" model would explain completely the process under study. While such models are found in the physical sciences, they are rare in the social sciences. D. Baldus & J. Cole, *supra* n.55, § 8.21, at 264. Indeed, it has been argued that no model in the social sciences ever meets the requirements for a perfect regression analysis. *Id.*, § 8.22, at 266. But this does not mean that because a model is subject to challenge, its results are valueless. *Cf. Editors' Introduction*, *supra*, at 169. Small departures from assumptions necessary for a perfect regression may have small deleterious effects. *Cf.* Fisher, *supra*, at 711.

The value of a regression would obviously be affected by problems in the underlying data or by mismeasurements of the explanatory variables. *Cf., e.g.*, R. Pindyck & D. Rubinfeld, *supra*, at 194-202; Kmenta, *supra*, at 336-41; G. Maddala, *supra* n.49, at 201-07; J. Johnston, *supra* n.51, at 281-91; *Beyond the* Prima Facie *Case*, *supra* n.57, at 417-21. *See generally* section V, *supra*, and section VII(C), *infra* (introduction). And, as discussed earlier, the model must be one justified by theory. We turn here to a few of the less intuitively obvious ways in which ordinary least squares can provide unreliable results important to this case.

In a perfect regression model using the ordinary least squares technique,[**] three major assumptions would hold:

> (a) that the effects of the random disturbance term are independent of the effects of the independent variable; (b) that the values of the random term for different observations are not systematically related and that the average squared size of the random effect has no systematic tendency to change over observations; and (c) that the sum of random effects embodied in the disturb-

[**] When regression techniques more advanced than ordinary least squares are used, not all such assumptions may need to hold for valid results to be generated by the regression analyses.

> ance term is distributed normally, in the "bell curve" generally characteristic of the distribution of the sum of independent random effects.

Fisher, *supra*, at 708.

One way the first assumption may be violated is if some relevant explanatory variable has been left out of the analysis. This is one type of "misspecification" or "specification error." For instance, if yield of a crop is dependent on both amount of fertilizer and rainfall, and if in our regression we include only fertilizer, there will be improper omission of an explanatory variable. The problem caused by omission of variables is that the regression coefficient(s) of the included explanatory variable(s) (*e.g.*, of fertilizer) would be "biased" (that is, not likely to be correct "on the average"),[61] *and* the usual tests of significance concerning the included regression coefficient(s) (such as calculation of a confidence interval) will be invalid. Kmenta, *supra*, at 392-95. *See* J. Johnston, *supra* n.51, at 169. Certain statistical tests are available to suggest whether this sin of omission has occurred. *See, e.g.*, Kmenta, *supra*, at 405.

However, in at least one circumstance, this problem may not be a serious one in cases where the issue is whether discrimination exists or does not exist. Where it is possible to use as proxy for the presence (or absence) of discrimination against a particular group a "dummy" or "group status" explanatory variable,[62] such an omission will not threaten the validity of the group status coefficient (and

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[61]For a simple explanation of bias, see Fisher, *supra*, at 709.

We do not discuss explicitly the associated concept of "efficiency." Because of the particular unbiased and "efficient" estimates of coefficients possible using the ordinary least squares technique, ordinary least squares is often described as the "best linear unbiased estimator." *See* R. Wonnacott & T. Wonnacott, *supra*, at 55-69; J. Johnston, *supra* n.51, at 126; Kmenta, *supra*, at 9-14, 161; R. Pindyck & D. Rubinfeld, *supra*, at 20-24.

[62]*See* n.57, *supra*.

hence, the validity of the model's suggestion of the existence or nonexistence of discrimination) unless the omitted variable is related to the group status variable. D. Baldus & J. Cole, *supra* n.55, § 8A.1, at 273. Thus, here, where the plaintiffs' model had compensation as its dependent variable, and various explanatory variables (including dummy variables for race and sex), Dr. Madden stated:

> Q. Do you agree that your report would have been more valid if you measured all potential productivity?
>
> A. Well, since my purpose was to analyze sex and race my report would have been more valid had there — to the extent that there are any omitted productivity variables that are correlated with race or sex. To the extent they're not correlated with race or sex [it] makes no difference whatsoever.

Testimony of Dr. Janice Madden at 104. *Cf.* Testimony of Dr. Judith Stoikov at 91.

Another type of specification error occurs when one or more irrelevant variables are *included* in the model. This overinclusion by itself causes fewer problems than underinclusion. *See* R. Wonnacott & T. Wonnacott, *supra*, at 413; R. Pindyck & D. Rubinfeld, *supra*, at 190; Kmenta, *supra*, at 399; J. Johnston, *supra* n.55, at 169. Overinclusion of variables, however, increases the risk of "multicollinearity."

Multicollinearity refers to a situation where due to the high (but not perfect) correlation of two or more variables (or combination of variables), it becomes difficult to disentangle their separate effects on the dependent variable. R. Pindyck & D. Rubinfeld, *supra*, at 67; G. Maddala, *supra* n.49, at 183. Multicollinearity creates broad confidence intervals, and estimates of coefficients become sensitive to particular sets of sample data: a multicollinear model makes it difficult to establish that an individual explanatory variable influences the dependent variable. R. Wonnacott & T. Wonnacott, *supra*, at 353; J. Johnston, *supra* n.51, at 160. Thus, even if two explanatory variables should be included in the

regression, if multicollinearity is serious it may be necessary to drop one of them. This, in turn, may cause problems associated with omission of variables, but those problems might in certain circumstances be acceptable in the face of more serious problems of multicollinearity. *See* R. Pindyck & D. Rubinfeld, *supra*, at 68; G. Maddala, *supra* n.49, at 190. *Cf.*, *e.g.*, Kmenta, *supra*, at 390-91 (an alternate solution to multicollinearity is acquisition of more data). There are some rough rules of thumb to judge whether multicollinearity is serious or not. G. Maddala, *supra* n.49, at 186; Kmenta, *supra*, at 389-91. Thus, in a discrimination model, when too many qualification variables are included, the patterns of correlation among the explanatory variables will be such that the confidence interval of the group status coefficient is inflated. *Cf.* D. Baldus & J. Cole, *supra* n.55, § 8A.1, at 274. Hence, if multicollinearity exists, the probability will be increased that the net impact of group status will be judged statistically nonsignificant, even in cases where there are actual differences in the treatment. *Id.* at 275.

Another form of specification error, occurs in the case where the analyst chooses to use a regression equation that is linear in the explanatory variables when the true regression model is nonlinear in the explanatory variables. For instance, the analyst may think the relationship is best described by, and thus runs the regression on:

$$(5)\quad Y = a + b_1x_1 + u$$

while the true relationship is:

$$(6)\quad Y = a + b_1x_1 + b_2(x_1)^2 + b_3(x_1)^3 + u$$

Specification of a linear model when the model is nonlinear — an error in the "form" of the specification — can lead to biased estimates. R. Pindyck & D. Rubinfeld, *supra*, at 190-91.

We have discussed the first major assumption underlying ordinary least squares with reference to specification errors. When the second assumption is violated, *i.e.*, when the

scatter or variance of the error terms about zero (the point of perfect prediction) is not approximately the same for all values of each independent variable, "heteroscedasticity" is said to exist. R. Pindyck & D. Rubinfeld, *supra*, at 17; R. Wonnacott & T. Wonnacott, *supra*, at 194-95; D. Baldus & J. Cole, *supra* n.55, § 8A.42, at 284. Heteroscedasticity can produce errors such as errors in confidence intervals. *Id.* at 285.

The third major assumption underlying ordinary least squares is that the error term follows the "normal distribution."[63] With respect to this assumption, basic least squares regression models are "quite 'robust' in that they will tolerate substantial deviations without affecting the validity of the results." D. Baldus & J. Cole, *supra* n.55, § 8A.41, at 284. Nonnormality of errors can be detected, through the use of such techniques as the Kolmorgorov-Smirnov test. G. Maddala, *supra* n.49, at 306.

E. *Econometric Indication of Discrimination.*

In econometric terms, one way used (here and in the economic literature) to study differences among individuals' wages is to estimate a regression such as:

(7) $Y = a + b_1x_1 + b_2x_2 + \ldots + b_kx_k + U$

where Y is the level (or natural logarithm)[64] of earnings, income, or wage rate, and $x_1, x_2, \ldots, x_k$ are observable pro-

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[63]For a discussion of the normal distribution, *see* section IX(A), *infra*.

[64]When the natural logarithm of Y is used as the dependent variable, it is, roughly speaking, as if the value of Y were being determined by the explanatory variables acting not in an additive fashion, but in a multiplicative fashion. For instance:

7(a) $\ln Y = a + b_1x_1 + b_2x_2$

is equivalent to

7(b) $Y = {}_ea_eb_1x_1{}_eb_2x_2$

, where e = 2.71828.

If Y were salary, x_1 experience, and x_2 education, then the behavorial assumption underlying these equations would be that schooling "intensifies" experience, and vice versa. *See* Testimony of Ross Stolzenberg.

ductivity characteristics. *Cf.* Blinder, *Wage Discrimination: Reduced Form and Structural Estimates*, 8 J. Human Res. 436, 437 (1973). To illustrate, we could assume that the employee's wages are a function of his years of schooling and years of relevant experience, both factors being postulated by human capital theory to be productivity-enhancing. In such a model, Y would be earnings, x_1 would be the number of years of schooling, and x_2 would be the number of years of relevant experience. If the assumptions necessary for ordinary least squares hold, *and* if this model is a valid one, then by running the model on actual data for the firm, we would obtain actual numbers for a, b_1, and b_2. To determine the predicted earnings for any employee, we would plug his particular values of x_1 and x_2 into equation 7, using the estimates of a, b_1, and b_2.

Recalling from our discussion in section VI(B), *supra*, there are three ways the econometric models, if true mathematical representations of real-world behavior, may indicate that the employer is discriminatory: (1) use of non-job-related criteria with disparate impact; (2) unequal treatment of twins; and (3) improper treatment across twins.

The first type of indication of discrimination may occur, for instance, where the employer states that he behaves according to a certain model, and that model includes explanatory variables which do not meet the legal standard of business necessity. The process of mathematically representing an employer's behavior should at this stage be external to the legal framework, such as those concerned with the legality of the employer's use of various predictors. In determining whether the employer is violating Title VII through the use of non-job-related criteria with disparate impact, one must follow a three-step procedure:[65]

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[65]Simply because a variable in an equation has a statistically significant coefficient associated with it does not prove it is job-related. All it may prove is that the employer has used the variable as a predictor. The law requires that predictors with disparate impact be job-related. *Contra*, Gwartney, Asher, Haworth, & Haworth, *supra* n.40, at 655-58.

(i) On purely econometric grounds, derive a mathematical model which best represents how the employer behaves. At this stage, it is not necessary for there to be *more* than business purpose to justify inclusion of a variable. Indeed, to require such a higher standard would be flawed methodologically. This is not to say that all relevant productivity-related variables should always be included: the problems which may be introduced by overinclusion and multicollinearity, described in section VI(D), *supra*, must always be considered.

(ii) Examine the variables with disparate impact and see if they are adequately justified under the "business necessity" standard.

(iii) For those variables justified under (ii), see if those variables have been subject to group status-based manipulation by the employer.

Step (ii) above is in part a restatement of the job-relatedness requirement:

> Once the racially adverse impact of an examination is demonstrated by statistical or other evidence, the burden of proof shifts to the employer to prove that the exam is job-related. *Albemarle Paper Co.* v. *Moody*, 1975, 422 U.S. 405, 426, 95 S.Ct. 2362, 2375, 45 L.Ed.2d 280, 301. *See Griggs* v. *Duke Power Co., supra*, 401 U.S. at 432, 91 S.Ct. at 854, 28 L.Ed.2d at 164. Employment *practices* having a racially adverse effect are subject to the same scrutiny: if a prima facie case of discriminatory practice is shown, it becomes the employer's burden to demonstrate the job performance validity of its practices. *Washington* v. *Davis, supra.* The employer's burden is not satisfied by establishing merely a rational basis for a test; the test must be validated. *Washington* v. *Davis, supra*, 426 U.S. at 247, 96 S.Ct. at 2051, 48 L.Ed.2d at 611. Validation, in general, requires a demonstration that "the qualifying tests are appropriate for the selection of qualified applicants for the job in question." *Id.* Validation by

> any one of a number of methods of making such a showing, *see id.* at 247 n.13, 96 S.Ct. at 2051, 48 L.Ed.2d at 611, suffices to refute statistical evidence that a test has had a disproportionate racial impact. *Id. See also Albemarle Paper Co.* v. *Moody, supra,* 422 U.S. at 425-31, 95 S.Ct. at 2375-78, 45 L.Ed.2d at 300-304. The same sort of validation will rebut the inferences drawn from statistical evidence of racial discrimination based on work practices.

Scott v. *City of Anniston,* 597 F.2d 897, 901-02 (5th Cir. 1979), *cert. denied,* 100 S.Ct. 1850 (1980).[66] *See also Smith* v. *Olin Chemical Corp., supra* (re those criteria which are "manifestly job-related"); *Garcia* v. *Gloor, supra* n.36, at 269 n.6, 270, & 272 ("there is no disparate impact if the [employment] rule is one the affected employee can readily observe and nonobservance is a matter of individual preference"); *Dothard* v. *Rawlinson,* 433 U.S. 321, 331 (1977) (re directness of predictors).

What is to be proven in job-relatedness is separate from the methods used in such proof. We leave description of the methods to section IX(F)(1), *infra.* The employer must show that he is using the predictor to the same extent as would a race- (or sex-) blind employer.[67]

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[66]This does not mean, of course, that "raw differentials" can always establish a *prima facie* case. *Cf. Hazelwood School District* v. *United States,* 433 U.S. 299, 308 n.13 (1977). *See, e.g., Pouncy* v. *Prudential Insurance Co. of America,* 23 Empl. Prac. Dec. ¶ 31,114, at 16,751 (S.D. Tex. 1980).

[67]*See* section VI(B), *supra* (example of possession of degree being weighted more than is justified). This feature of job-relatedness could be viewed as one aspect of "improper treatment across twins," described *infra.*

It should be observed that this aspect of the latter concept arises in this litigation only in the hiring case (section IX, *infra*). It does not arise in the initial placement, promotion, or compensation cases because the Bank's rebuttal models fail for other reasons, and so we do not reach the job-relatedness issue.

Cf. Horner v. Mary Institute, 613 F.2d 706, 715 n.9 (8th Cir. 1980).

Finally, predictors must be such that if "the legitimate ends of safety and efficiency could be served by a reasonably available alternative system of classification with less discriminatory effect, the classification cannot be continued." Note, 12 Ga. L. Rev. 104, 106 n.12 (1977). *See United States* v. *Jacksonville Terminal Co.*, 451 F.2d 418, 451 (5th Cir. 1971), *cert. denied*, 406 U.S. 906 (1972). More specifically, the Fifth Circuit has held that:

> [F]or a practice, which is not intentionally discriminatory or neutral but perpetuates consequences of past discrimination, to be justified by business necessity, the practice must "not only foster safety and efficiency, but must be essential to that goal . . . and there must not be an acceptable alternative that will accomplish that goal equally well with a lesser differential racial impact." *Parson* v. *Kaiser Aluminum & Chemical Corp.*, 575 F.2d 1374 (5th Cir.), *cert. denied*, 441 U.S. 968, 99 S.Ct. 2417, 60 L.Ed.2d 1073 (1979).

Swint v. *Pullman-Standard*, 624 F.2d 525, 536 (5th Cir. 1980). *But cf. Garcia* v. *Gloor*, *supra* n.36, at 271.

Step (iii) of our three-step analysis relates to use of predictors which are susceptible to manipulation by the employer. If a predictor which, while not valueless as a predictor of productivity, is subject to manipulation by a racist employer, the econometric results generated may well be biased in favor of a finding of nondiscrimination. *Cf.*, *e.g.*, *Greenspan* v. *Automobile Club of Michigan*, 22 Empl. Prac. Dec. ¶ 30,812, at 15,193-94 (E.D. Mich. 1980); Finkelstein, *The Judicial Reception of Multiple Regression Studies in Race and Sex Discrimination Cases*, 80 Colum. L. Rev. 737, 738-41 (1980). Thus, for instance, in *James* v. *Stockham Valves & Fittings Co.*, 559 F.2d 310 (5th Cir. 1977), *cert. denied*, 434 U.S. 1034 (1978), the defendant presented an earnings regression study which included a merit rating as one of its explanatory variables. The court observed, "If there is racial bias in the subjective evaluations of white supervisors, then that bias will be injected into . . . [the]

earnings analysis." *Id.* at 332. Use of manipulable predictors in multiple regressions may cloak the employer's "personal biases in the mantle of a scientific judgment." *Cf.* Underwood, *supra* n.35, at 1443.

Since to include manipulable predictors as explanatory variables may be to bias the econometric results in favor of the employer, if despite such inclusion the plaintiffs are able to show non-productivity-related pay differentials, the results are all the more impressive. But in the defendant's hands, while models which include manipulable predictors among the explanatory variables are not valueless, especially if those predictors are shown not to have been manipulated, they may be suspect.

The second way in which econometrics may indicate discrimination occurs when the coefficients indicate that a white and a black are being rewarded differently for the possession of the same productivity characteristic(s): there is not equality of treatment of twins. *See* section VII(C), *infra.* Referring to the econometric model described in the beginning of this section (wherein x_1 is the number of years of schooling and x_2 is the number of years of relevant experience), we can see that there are at least two possible econometric indications of this sort of inequality:[68]

> 1. First, one can run the same equation on data twice, the initial time running it on data solely for one group, and second time on data solely for the other group. After doing this, one compares the coefficients obtained for the two groups. *Cf.* Testimony of Dr. Francine Blau at 66.
>
> So if we obtain for males $Y = 10000 + 500x_1 + 350x_2$, and for females $Y = 9000 + 400x_1 + 300x_2$ at the same job, it is clear that females are being discriminated against. That is, any female regardless of her particular combination of schooling and experience is receiving less

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[68] *See generally* Fisher, *supra*, at 722-24; *Beyond the* Prima Facie *Case*, *supra* n.57, at 401-04.

than a corresponding male: since the regression coefficients (a, b_1, and b_2) are each higher for males than for females, males are being rewarded more for each productivity-related characteristic. This is the simple situation, where it is clear that females are being discriminated against — where a(female) is less than a(male), *and* b_1(female) is less than b_1(male), b_2(female) is less than b_2(male), and so on.

A more difficult case would be that where males are rewarded more for one characteristic, while females are rewarded more for another: a "mixed" case. *Cf., e.g.*, Defendant's Exhibit 32, at Table 5. Here some men would be paid more than women with identical portfolios of productivity characteristics, while some women would be paid more than men with identical portfolios of productivity characteristics. For instance, suppose that $Y = 10000 + 500x_1 + 350x_2$ for males and $Y = 10000 + 400x_1 + 1000x_2$ for females.

> (a) A woman with no schooling and two years of experience will be paid 10000 + 0 + 2000 or $12,000; a similar man will be paid 10000 + 0 + 700 or $10,700. Here a woman earns more than a man with the identical portfolio of productivity characteristics.
>
> (b) A woman with three years of schooling and no experience will be paid 10000 + 1200 or $11,200; a similar man will be paid 10000 + 1500 + 0 or $11,500. Here a woman earns less than a man with the identical portfolio of productivity characteristics.

In such a "mixed" case, one might, for example, offer statistical evidence to show that as a result of different regression coefficients for the two groups, because of the empirical distribution patterns of productivity characteristics in the two groups one group is favored at the expense of the others. *Cf., e.g.*, Oaxaca, *Male-Female Wage Differentials in Urban Labor Markets*, 14 Int'l

Econ. Rev. 693, 694-97 (1973); Defendant's Exhibit 32, at 24-25.[69]

One manner of comparing the regression coefficients for the two groups without actually running two separate regressions as described above is to use what are called "interaction" terms. By adding such terms to the regression equation to be estimated, one can produce estimates of the difference in the weights placed on each qualification. Thus, if we added an interaction term for race and experience, and one for race and schooling, the coefficient of the race-experience interaction term indicates the difference between the coefficient for experience for whites and blacks, and the coefficient of the race-schooling interaction term indicates the difference between the coefficients for schooling for whites and blacks. *See* D. Baldus & J. Cole, *supra* n.55, § 8.123[2], at 262-64.

2. The other major way of detecting discrimination between two groups is to use "dummy variables." This method, in contrast to the more general method outlined above, can only be used if it is *assumed* that *all* the coefficients for the explanatory variables are exactly the same for the two groups being compared; that the only difference with being female (or black) is represented by one overall effect (that is, the coefficient of the "dummy variable"). *Cf.* Testimony of Dr. Francine Blau at 66.

Thus, suppose that x_1 is the "dummy variable" for race ("1" is input for being black, and "0" for being white) and x_2 and x_3 are the two productivity predictors. If the multiple regression is run and we obtain

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[69]We do not reach the legal implications of an empirical finding of a "mixed case" because in this litigation we do not need to do so. The above discussion of the "mixed case" is only meant to be a background to an understanding of the use of a dummy variable index for group status. *Cf.* Waintroob, *The Developing Law of Equal Employment Opportunity at the White Collar and Professional Level*, 21 Wm. & Mary L. Rev. 45, 98-103 (1979).

$Y = \$5000 - 700x_1 + 300x_2 + 400x_3$, then this means that a black will earn $700 a year less than an equivalent white. *Cf.* D. Baldus & J. Cole, *supra* n.55, § 8.02, at 242; R. Wonnacott & T. Wonnacott, *supra*, at 100-103.

The third way an employer may not be treating people solely according to productivity differences is what we have termed improper treatment across twins: (i) econometrically, this may mean that a particular race- (or sex-) correlative personal productivity characteristic may be rewarded by a racist (or sexist) employer more than it would be by a nonracist (or nonsexist) employer or (ii) the relative pay of various jobs may not correspond to their "worth". As for (i), suppose that a nonsexist employer would pay employees of both sexes according to the equation $Y = 5000 + 300x_1 + 400x_2$, and that men tend to possess higher amounts of x_1 and lower amounts of x_2. If a sexist employer pays instead according to the equation $Y = 5000 + 600x_1 + 400x_2$, then men are being paid more than is actually justified by productivity considerations. The weighting is improper.[70] As for (ii), see section VII(A), *infra* (re "comparable work").

In this section we have been discussing econometric detection of an employer's consideration of group status in addition to his consideration of productivity differences among individuals. In certain rare circumstances, such consideration of group status might not be violative of Title VII. *See* the discussion of possible Equal Pay Act restrictions on allegations of wage discrimination on account of sex in section VII(A), *infra*. Finally, we must emphasize that while we do examine certain indicators of discrimination — such as coefficients of dummy variables for group status — we do not mean to canonize particular indices of discrimination. To do so may encourage employers to focus unduly on improving the indices, despite all their short-

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[70] *See* n.67, *supra*.

comings, rather than on ensuring real-world equality of opportunity. Moreover, if employers were to do so, the value of the indices as accurate indicators of discrimination would be depreciated. *Cf.* B. Ackerman, *et al.*, *supra*, at 28-30 (dangers of using a simple number as proxy for an environmental problem).

VII. *Compensation*

A. *The Legal Standard for Compensation Discrimination.*

In section VI, *supra*, the court reviewed the "equality of treatment" objective of Title VII, and the role of mathematical modeling in detecting deviation from such equality. That discussion is applicable to the area of compensation. An employer is permitted to pay people commensurate with their productivity.[71] Focusing primarily on "equality of treatment of twins", discussed in section VI(E), *supra*, the plaintiffs, relying on coefficients of dummy variables, seek to show that a hypothetical black (or female) would be paid less than a hypothetical white (or male) possessing the same set of productivity characteristics in all the relevant years. The Bank offers analyses designed to show that this is not so.

Not surprisingly, where an employer has employees in differing occupations and of different backgrounds, a simple comparison of the average wage of all white employees and all black employees (or all male employees and all female

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[71]One can also differentiate for certain other reasons. "Like the Equal Pay Act, Title VII exempts from its coverage wage differentials paid pursuant to an incentive system or to a bona fide seniority or merit system." Note, *The Bennett Amendment — Title VII and Gender-Based Discrimination*, 68 Geo. L. J. 1169, 1173 (1980). The plaintiffs' theory of wage differentials is that productivity *and* group status explain differentials; the Bank's explanation is based on a differing productivity theory. We thus need only consider how econometrics may reveal non-productivity-based compensation. *See* n.36, *supra*.

employees) will not be enough to prove salary discrimination. *See, e.g., Pouncy* v. *Prudential Insurance Co. of America, supra* n.66, at 16,751 ("The Court believes that the proper inquiry in an analysis of salaries by race should focus on whether black and white employees with the same tenure at the same job level are paid the same salaries"); *Sweeney* v. *Board of Trustees of Keene State College*, 569 F.2d 169, 179-80 (1st Cir.), *vacated on other grounds*, 439 U.S. 24 (1978); *Patterson* v. *Western Development Laboratories Division of Aeronutronic Ford Corp.*, No. 74-2177 (N.D. Cal. Sept. 14, 1976) (at section II); *Smith* v. *Union Oil Co.*, 17 Empl. Prac. Dec. ¶ 8411 (N.D. Cal. 1977) (at section F); *Booth* v. *Board of Directors of National American Bank*, 475 F.Supp. 638, 654 (E.D.La. 1979); *cf. EEOC* v. *Akron National Bank & Trust Co.*, 23 Empl. Prac. Dec. ¶ 31,102, at 16,662 (N.D. Ohio 1980). *But cf. Kyriazi* v. *Western Electric Co.*, 461 F.Supp. 894, 913-14 (D.N.J. 1978), *vacated in part on other grounds*, 473 F.Supp. 786 (D.N.J. 1979). For reasons analogous to the rejection of "raw" work force figures as the basis for establishment of a *prima facie* hiring case in certain circumstances, described in section IX(C), *infra*, we reject use of "raw" average pay differentials as the basis for a *prima facie* compensation case where the pay is averaged across a wide range of jobs and backgrounds. *See Pouncy* v. *Prudential Insurance Co. of America, supra* n.66, *cf. Patterson* v. *Western Development Laboratories Division of Aeronutronic Ford Corp., supra. But cf. Booth* v. *Board of Directors of National American Bank, supra* (average pay at hire of all clerical employees (only) hired by defendant in 1976). Such modeling is not sufficiently meaningful to suggest that discrimination has indeed occurred.

One method for controlling for personal characteristics affecting productivity and occupational factors[72] affecting

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[72]As an instance of how one's occupation may affect productivity, a brilliant employee, equally good as an electrical engineer and a messenger, is likely "worth" more to his employer as an engineer than as a messenger.

productivity in analysis of compensation discrimination is through multiple regressions *See, e.g., Greenspan* v. *Automobile Club of Michigan*, 22 Empl. Prac. Dec. ¶ 30,812, at 15,179, 15,183, 15,192 n.49, and 15,195 n.51 (E.D. Mich. 1980); *Pouncy* v. *Prudential Insurance Co. of America, supra* n.66, at 16,751-53; *Presseisen* v. *Swarthmore College*, 442 F.Supp. 593, 615-20 (E.D. Pa. 1977), *aff'd mem.*, 582 F.2d 1275 (3d Cir. 1978); *Mecklenburg* v. *Montana Board of Regents of Higher Education*, 13 Empl. Prac. Dec. ¶ 11,438, at 6496-97 (D. Mont. 1976). While the selection of the personal productivity predictors to be included in the multiple regression should be based on the general Title VII and econometric principles outlined in section VI, *supra*, the control for occupation (and hence any productivity differences rooted in occupational differences) is dependent on provisions directed specifically toward compensation discrimination. We turn now to this developing area of the law, and draw out its implications for the sort of controls for occupation an econometric analysis may have to have in order to establish a *prima facie* case of compensation discrimination.

Title VII provides in part:

> It shall be an unlawful employment practice for an employer — (1) to fail or refuse to hire to discharge any individual, or otherwise to discriminate against any individual with respect to his *compensation, terms, conditions*, or *privileges of employment*, because of such individual's race, color, religion, sex, or national origin . . . .

42 U.S.C. § 2000e-2(a) (emphasis supplied). "Shortly before the enactment of Title VII in 1964, Senator Bennett proposed an amendment providing that a compensation differential *based on sex* would not be unlawful if it was authorized by the Equal Pay Act, which had been passed a year earlier." *Los Angeles Department of Water & Power* v. *Manhart*, 435 U.S. 702, 711 (1978) (emphasis supplied).

The Bennett Amendment became part of § 703(h) of Title VII.[73]

In contrast to Title VII, there is no language in the Equal Pay Act which proscribes discrimination in compensation generally; instead, the Equal Pay Act provides in part:

> No employer having employees subject to any provisions of this section shall discriminate, within any establishment in which such employees are employed, between employees on the basis of sex by paying wages to employees in such establishment at a rate less than the rate at which he pays wages to employees of the opposite sex in such establishment for *equal work or jobs the performance of which requires equal skill, effort, and responsibility, and which are performed under similar working conditions.*

29 U.S.C. § 206(d)(1) (emphasis supplied). The only wage discrimination based on sex proscribed by the Equal Pay Act is that of unequal compensation for *equal work*. *Orr* v. *Frank R. MacNeil & Son, Inc.*, 511 F.2d 166, 171 (5th Cir. 1973). The Equal Pay Act is limited in scope. *See EEOC* v. *Aetna Insurance Co.*, 616 F.2d 719, 724 n.5 (4th Cir. 1980).

As the Fifth Circuit stated in *Pearce* v. *Wichita County*, 590 F.2d 128, 133 (5th Cir. 1979) (emphasis supplied):

> A prima facie Equal Pay Act case requires a showing that the "employee pays different wages to employees of opposite sexes 'for equal work on jobs the performance of which requires equal skill, effort and responsibility, and which are performed under similar working

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[73]Section 703(h) provides in part:

It shall not be an unlawful employment practice under this title for any employer to differentiate upon the basis of sex in determining the amount of the wages or compensation paid or to be paid to employers of such employees if such differentiation is authorized by the provisions of section 6(d) of the Fair Labor Standards Act of 1938, as amended.

42 U.S.C. § 2002e-2(h).

> conditions'." *Corning Glass Works* v. *Brennan*, 417 U.S. 188, 195, 94 S.Ct. 2223, 2228, 41 L.Ed.2d 1 (1974). To establish "equal work," the employee need not prove that the duties performed are identical, but merely that the "skill, effort and responsibility" required in the performance of the jobs is "*substantially equal*". *Brennan* v. *City Stores, Inc.*, 479 F.2d 235, 238-39 (5th Cir. 1973). *See* 29 CFR § 800.122 (1977).

See also Stastny v. *Southern Bell Tel. & Tel. Co.*, 23 Empl. Prac. Dec. ¶ 31,155, at 17,006-07 (4th Cir. 1980). Congress substituted the word "*equal*" for "*comparable*" in the Equal Pay Act to show that "the jobs involved should be virtually identical, that is, they would be very much alike or closely related to each other." *Brennan* v. *City Stores, Inc.*, 479 F.2d 235, 238 (5th Cir. 1973). In looking for substantial equality, courts must look separately at each of skill level, effort level, and responsibility level. *See, e.g., Kohne* v. *Imco Container Co.*, 480 F.Supp. 1015, 1038 (W.D. Va. 1979). *Cf. Blumrosen, Wage Discrimination, Job Segregation, and Title VII of the Civil Rights Act of 1964*, 12 U. Mich. J.L. Ref. 399, 477 (1979). Hence, two jobs which have different levels of skill, effort, or responsibility, or different working conditions, even if considered of comparable "worth" for compensation purposes by a firm because the total of the "points" assigned to each of the four factors for the two jobs are equal, will not suffice for Equal Pay Act purposes. *Cf. id.* at 47677. Otherwise stated, the "Act's requirements of equal skill, effort, responsibility, and similar working conditions cannot be aggregated to establish job equality." *Kohne* v. *Imco Container Co., supra*, at 1038. Indeed, implementing regulations provide that:

> Application of the equal pay standard is not dependent on job classifications or titles but depends rather on actual job requirements and performance. For example, the fact that jobs performed by male and female employees may have the same total point value under

> an evaluation system in use by the employer does not in itself mean that the jobs concerned are equal according to the terms of the statute.

29 C.F.R. § 800.121 (1979). *Cf.* Nelson, Opton, & Wilson, *Wage Discrimination and the "Comparable Worth" Theory in Perspective*, 13 U. Mich, J.L. Ref. 233, 266-67 (1980). *See also* Murphy, *Female Wage Discrimination: A Study of the Equal Pay Act 1963-1970*, 39 U. Cinc. L. Rev. 615, 637 (1970).

The Bennett Amendment created an inescapable analytical linkage between Title VII and the Equal Pay Act. The Third and Ninth Circuits have both held that in sex-based wage discrimination cases, recovery is not limited to the Equal Pay Act "unequal pay for equal work" claims. *See International Union of Electrical, Radio and Machine Workers* v. *Westinghouse Electric Corp.*, 23 Empl. Prac. Dec. ¶ 31,106A (3rd Cir. 1980); *Gunther* v. *County of Washington*, 602 F.2d 882, 623 F.2d 1303 (9th Cir. 1979), *rehearing denied*, 623 F.2d 1303, 1317 (9th Cir. 1980). On the other hand, the Tenth Circuit has rejected this approach. *See Lemons* v. *City and County of Denver*, 620 F.2d 228, 229 (10th Cir. 1980). In a sex discrimination case, the Fifth Circuit recently left open the issue of whether Title VII is broader than the Equal Pay Act. *See Burdine* v. *Texas Dept. of Community Affairs*, 608 F.2d 563, 569 n.14 (5th Cir. 1979), *cert. granted*, 100 S. Ct. 3009 (1980).

We do not decide this complex issue here. *Compare International Union of Electrical, Radio and Machine Workers* v. *Westinghouse Electric Corp.*, *supra*, (A. Leon Higginbotham, J.) *with id.* (Van Dusen, J. dissenting). *Compare also* Blumrosen, *supra*, *with* Nelson, Opton, & Wilson, *supra*. We do not decide the issue here because it is not dispositive: for reasons independent of the relationship issue, the plaintiffs fail to establish a *prima facie* case of wage discrimination as to females.

Whatever the correct interpretation of the interrelationship between the two statutes for sex-based wage discrimination, the Equal Pay Act requirement of substantially equal work does not apply to race-based wage discrimination. *But see Chapman* v. *Pacific Telephone & Telegraph Co.*, 456 F.Supp. 65, 68 n.5 (N.D. Cal. 1978); *Patterson* v. *Western Development Laboratories Division of Aeronutronic Ford Corp., supra.* Equal work in order to render unequal pay illegal under Title VII is a product of the Bennett Amendment. Gitt & Gelb, *Beyond the Equal Pay Act: Expanding Wage Differential Protections Under Title VII*, Loyola U. L.J. 723, 734 (1977). This rationale does not reach race-based claims of wage discrimination; indeed, the Bennett Amendment literally applies only to sex-based compensation claims. And though Congress could have done so, it did not legislate that plaintiffs alleging race or other non-sex-based group-status discrimination were similarly subject to the Equal Pay Act.

Indeed, the Third Circuit has argued as a reason for abandonment of the equal work requirement for sex-based wage discrimination claims that there is no such requirement for wage discrimination based on other group-status. The majority opinion in *International Union of Electrical, Radio* and *Machine Workers* v. *Westinghouse Electric Corp., supra*, at 16,682, stated:

> [I]t is clear that Title VII prohibits an employer from paying more per hour to welders than plumbers *if* the reason for the employer paying higher wages to the welder is that the majority of the welders are Protestants and Catholics. In such case an employer be "classify[ing] his employees . . . in [a] way which would deprive any individual of employment opportunities [high wages] . . . because of such individual's . . . religion." 42 U.S.C. § 2000e-2(a). While Westinghouse presumably would not challenge the illegality of the scheme outlined above, it asserts that the scheme would be permissible if the reason for the wage disparity is that the majority of welders are men

> and the majority of plumbers are women. The Supreme Court has never ruled on the statutory issue raised in this case, but in dicta in Title VII cases, the Court tends to refer to discrimination on the basis of race, religion, sex, or national origin as they are equally nefarious and equally prohibited.
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> . . .
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> In the absence of explicit statutory language or Supreme Court holdings to the contrary, we are hesitant to conclude that Title VII would allow discriminatory behavior on the basis of sex, when the same behavior would be prohibited if made on the basis of race, religion or national origin.

Moreover, control for "substantially equal" jobs in multiple regressions offered to show race-based wage discrimination has not been required in at least one Fifth Circuit, albeit non-Title VII, case. In *Wade* v. *Mississippi Cooperative Extension Service*, 528 F.2d 508, 517 (5th Cir. 1976), while the opinion is not clear on this point, the court appears to have considered a multiple regression with salary as a dependent variable, performed on black and white professional workers at the Mississippi Cooperative Extension Service, using experience and qualifications as explanatory variables. Applying the Equal Pay Act's "substantially equal work" standard would have required regressions on employees in "substantially equal" jobs (or on a representative sample of "substantially equal" jobs) at the firm[74] or the multiple regression analysis would otherwise have had to be designed to test whether equivalent blacks and whites doing

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[74]Because the number of employees in each job may well be limited, statistical significance may be a near physical impossibility due to sample size problems; the court might look at the overall pattern of pay differentials in the various regressions for each job (or sample of jobs) at the firm, even though pay differentials in individual regressions may not be statistically significant. *Cf.*, *e.g.*, Fisher, *Multiple Regression in Legal Proceedings*, 80 Colum. L. Rev. 702, 718 (1980) (value of statistically significant results in multiple regressions); R. Wonnacott & T. Wonnacott, *Econometrics* 88-90 (2d ed. 1979); D. Baldus & J. Cole, *supra* n.55, at 316-17.

"substantially equal" jobs would be paid the same. Whether because the court was uncomfortable with controlling only for professional status, or for some other reason, the court did not hinge its opinion solely upon the statistical evidence.[75]

Concluding that at least for race-based wage discrimination cases we are not restricted to claims of unequal pay for equal work does not mean that we adopt a policy of independently setting out entire scales of relative wages for dissimilar jobs according to the court's perception of each job's "worth", a hopelessly involved task inappropriate of judicial resolution. Such a failure to recognize institutional competence would risk possible deleterious effects not only on employers but on groups intended to be protected. *Cf.*, Nelson, Opton, & Wilson, *supra*, at 277 & 288-97; *International Union of Electrical, Radio and Machine Workers* v. *Westinghouse Electric Corp.*, *supra* (Van Dusen, J., dissenting), at 16,690. As stated in another context, "Judges . . . have neither business experience nor the problem of meeting the employees' payroll . . . ." *Garcia* v. *Gloor*, *supra* n.36, at 271.

Courts need not engage in this sort of independent wage-setting even in the absence of Equal Pay Act restrictions because of the basic principle that it is the plaintiffs' burden to prove discrimination in compensation. It would be difficult for a plaintiff to prove that jobs dissimilar in duties and pay are of the same "worth" to the employer. *Cf.* Nelson, Opton, & Wilson, *supra*, at 288 (measurability of wage

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[75]The Fifth Circuit stated:

> [W]e find that while in some instances the statistical facts spoke for themselves, as in the absence of promotions of black professional workers, in other cases, there was evidence beyond the statistical facts and analysis that would support an inference of discrimination, as in the case of salaries.
>
> Having found that the plaintiffs did establish a prima facie case, either on the basis of statistical data by itself or by the case of statistical data and analyses supported by other evidence, the burden fell to the defendants to rebut the plaintiffs' case.

Wade v. *Mississippi Cooperative Extension Service*, *supra*, at 517.

discrimination); *Gunther* v. *County of Washington, supra*, 623 F.2d at 1321; Sullivan, *The Equal Pay Act of 1963: Making and Breaking a Prima Facie Case*, 31 Ark. L. Rev. 545, 580-81 (1978). Moreover, even were the first job "worth" the same as the second to a race-blind employer, the market may price those two jobs differently.[76] "[N]othing in the text and history of Title VII . . . [suggests] that Congress intended to abrogate the laws of supply and demand or other economic principles that determine wage rates for various kinds of work." *Christensen* v. *Iowa*, 563 F.2d 353, 356 (8th Cir. 1977).

Here the plaintiffs can show that there has been discrimination in compensation across dissimilar jobs without involving the court in independent wage-setting. The "worth" of particular jobs has already, in a sense, been determined by the Bank itself through the use of the "Hay point system". By controlling for Hay points, such as by including Hay points among the explanatory variables, the regression is comparing salaries of people in jobs "worth" the same amount to the Bank; the other explanatory variables control for the other ways in which an employee may vary in worth to the company (such as by his education or experience). Using the Bank's own valuation system should not give us pause. Indeed, if a plaintiff can show wage discrimination using the Bank's own valuation system, it is all the more impressive because of the possibility of inappropriate valuation by the Bank of jobs. *See* Blumrosen, *supra*, at 434-37 (how internal phases of evaluation systems may be discriminatory).

We will be more specific. Where a job evaluation system used by the employer himself assigns values of relative worth (points) to positions, they can be used to control for work. While it may well be true that in certain instances one job worth the same internal points as another job might have different values in the open market, a court can presume for the purposes of the *prima facie* case that overall,

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[76]Of course, the employer cannot rely on the market to pay members of one race less than another.

across the many positions of a large employer such as Republic, there is no systematic bias that would occur from using such a control.[77]

See section IV(C), *supra* (re Hay system). *Cf. Pouncy* v. *Prudential Insurance Co. of America, supra,* n.66, at 16,751.

It would then be up to the Bank on rebuttal to show how this control for work is not adequate in the face of marketplace realities.[78] That is, we do not require that the employer ignore the marketplace value of skills and jobs. *See Christensen* v. *Iowa, supra; Horner* v. *Mary Institute,* 613 F.2d 706, 714 (8th Cir. 1980). *Cf. Presseisen* v. *Swarthmore College, supra,* at 615-16 (Physics versus English teachers example); P. Samuelson, *Economics* 84 (11th ed. 1980) (professors of physics and engineering average higher incomes than do professors of Greek and botany); Defendant's Exhibit 201 (first paragraph). For such a marketplace defense to succeed, however, the employer must do more than show that there are isolated instances of deviations from the standard relationship of salary to Hay points.[79] *See* section VII(C), *infra* (at introductory part of

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[77]That is, there is no reason to suppose that if an employer has 100 jobs, and the same Hay points were assigned to 50 pairs of jobs (one job predominantly white and the other predominantly black), that it is always the "black" job of each pair that is valued lower in the marketplace.

[78]The Bank may of course also show that there are other legitimate reasons for differentials, *see* n.71, *supra,* or that such control for work is otherwise inadequate. *See generally* section VII(C), *infra* (introduction) (re challenging *prima facie* case).

We do not mean to suggest that adding a Hay point variable to the pay regression is a perfect control for differentials due to differences in occupations. *See, e.g.,* Testimony of Dr. Ross Stolzenberg (on how Hay points do not solve the problem; for instance, the coefficient of the education variable may be different for two occupations). However, to require perfection in the *prima facie* case is not justified. Esoteric statistical arguments of the sort cited by Dr. Stolzenberg may, however, be raised on rebuttal.

[79]There was testimony, for instance, that petroleum engineers had to be paid more than the normal Bank "line."

subsection) (description of the conditions necessary for modeling imperfections to cause the modeling results to lose probative effect).

B. *Compensation Data*[80]

1. *Plaintiffs' Models.*

The plaintiffs' statistical proof as to their compensation claims consists almost exclusively of the multiple regressions designed by Drs. Francine Blau and Janice Madden. However, the plaintiffs also present statistical analyses performed by Drs. John Spaulding and David Morgan. These other studies use techniques less powerful that the plaintiffs' multiple regressions, and are best considered superseded by the multiple regressions. *Cf.* n. 183, *infra* (re Dr. Odell's hiring analysis in relation to Dr. Stoikov's). Nevertheless, we discuss these two experts' analyses briefly, concluding that they do not provide independent probative evidence on the compensation issue.

Dr. Spaulding's[81] major report focused on the change from 17 nonexempt grades to 10 grades and what he refers to as "an apparent change in salary ranges of minimum, midpoint, maximum" on September 1, 1973. Plaintiffs' Exhibit 500, at 1. *See also* section IV(C), *supra.* He performed analyses comparing various segments of the Bank (*i.e.*, comparing males and females) as to the relative frequency of "down", "same", and "up" changes in salary and in Hay points experienced by those segments as a result of the switchover. These measures are far too crude to

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[80]We do not deal in this section with the anecdotal evidence or the system for determining compensation used by the Bank. *See* sections VIII(A), *infra,* and V(D), *supra.*

[81]John Spaulding, D.B.A. (Doctor of Business Administration), is an associate professor at the College of Business of North Texas State University. Dr. Spaulding is a statistician who is a member of the American Statistical Association, the American Production and Inventory Control Society, and the American Institute of Decision Science.

serve as the basis of any inference of salary discrimination. A *de minimus* change in salary or Hay points would be counted in the same manner as a large change. *Cf.* section VIII(A)(2)(i), *infra* (crudeness of proxy for promotion).

Certain of Dr. Spaulding's analyses show the distribution by race and sex of employees in various categories of job performance evaluation ("distinguished", "commendable", "competent", "fair", and "marginal"), and associated magnitudes of salary increases from being placed in these performance categories. The analysis focuses on whether there is a difference in raises across races and sexes after controlling for performance. *See* Testimony of Dr. John Spaulding, Jr., at 929-30, 944 (Plaintiffs' Exhibits 675-80, 687, 688, 689 admitted), and 1036-46. There are two reasons why this analysis is not of independent probative value on the issue of salary discrimination. First, it does not separate the effects of any salary discrimination from promotion discrimination. That is, an observation that males get higher salary increases might be due to greater promotional opportunities available to them, and not due to any advantage in salary. Second, this sort of study is concerned only with changes in salary, not the underlying salaries themselves. At best, this sort of study is more probative on *how* salary discrimination may be occurring than on *whether* salary discrimination is taking place. Third, and foremost, the court is not convinced of the probative value of what is in essence a model for salary increases with only one true explanatory variable, at least in the absence of expert testimony that this is indeed a credible model. Professor Spaulding is an impressive expert on statistics, but not on compensation or other personnel practices. *See* Testimony of Dr. John Spaulding, Jr., at 973-74. In the absence of endorsement of the model by an expert familiar with compensation theory, the court cannot accept it because, drawing on its general knowledge, it can conceive of many non-included factors which might affect the magnitudes of salary increase. *Cf.* section VI(D)(2), *supra* (re necessity of theory underlying model).

Dr. David Morgan[82] performed analyses which compared salaries of various segments of the Bank's population (*e.g.*, males and females) controlling for one or two factors at a time. *See* Plaintiffs' Exhibits 922 and 923. For example, he controlled for exempt status in one analysis, coming up with the following table:

	Exempt Females	Exempt Males	Female Average/ Male Average
1973*	10,145 (124)	17,079 (683)	.594
1974*	10,822 (166)	18,170 (752)	.596
1975*	11,754 (188)	20,050 (752)	.586
1976*	12,774 (199)	21,012 (696)	.608
1977*	13,875 (239)	22,797 (691)	.609
1978*	14,595 (233)	24,213 (636)	.603

Note: Numbers in parentheses are counts of persons in each category.

*Significant difference between sexes at alpha = .05

AVERAGE SALARIES BY SEX, EXEMPT EMPLOYEES, 1973-1978

Derived from Table 4-1, Plaintiffs' Exhibit 922.

In another, he broke down comparisons between exempt females and exempt males by officer grade level (level zero, "entry level", through level nine, "chairman of the board"). *See* Plaintiffs' Exhibit 922, at 3 & 14-15.

Dr. Morgan's analyses are not probative of salary discrimination. Without reaching other objectives, we find that in none of his analyses does he adequately control simultaneously for personal productivity-related characteristics and job characteristics. For instance, comparing the average level 3 (vice president) exempt female salary with the average level 3 (vice president) exempt male salary will not tell us much; greater productivity due to the personal characteristics of the males could be accounting for the

[82]David Morgan, Ph.D., is an Assistant Professor of Geography and Political Science at the University of Texas at Dallas. His area of expertise is the collection and analysis of social science data.

differential. (Similarly, such raw comparisons as those presented in Plaintiffs' Exhibit 253(a) are non-probative.)

Drs. Blau[83] and Madden[84] provided econometric analyses for pay differences among various groups at the Bank. We have already described their approach in section VI(C), *supra*, and the use of dummy variables as indices of discrimination in section VI(E), *supra*. For these reasons, and because we will be examining the Bank's challenges to the models one by one in sections VII(C) and VIII, *infra*, we need do no more here than to summarize in tabular form the more important regressions offered by the plaintiffs at trial.[85]

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[83]Francine Blau, a Ph.D. in economics, is an Associate Professor of Economics and Labor and Industrial Relations at the University of Illinois at Urbana-Champaign. *See* Testimony of Dr. Francine Blau at 4; Plaintiffs' Preliminary Report Identifying Expert Witnesses (at Exhibit E). She has taught a number of courses in labor economics, including the economics of discrimination, women in the labor market, and the economics of human resources.

[84]Janice Madden, a Ph.D. in economics, is an Associate Professor of Regional Science at the University of Pennsylvania. She has published a book in the field of labor economics, is on the editorial board of the International Economic Review, and has taught in the areas of economics of race and sex discrimination and statistical methodology. *See* Testimony of Dr. Janice Madden at 4-7.

[85]We do not, list the regression results of Plaintiffs' Exhibit 1410: the regressions therein do not have any controls for work performed and so are not probative of salary discrimination. *See* sections VII(A), *supra*, and VII(C), *infra*. *See also* n.117, *infra*. Similarly, we do not here list the results of Dr. Madden's "cohort" analysis in Plaintiffs' Exhibit 1308 (at Tables 13 and 14). *See also* section VIII(A)(1)(ii), *infra*.

We do not discuss the separate regressions for "other minority" females because they are not among the plaintiffs. *See, e.g.*, Plaintiffs' Exhibits 504-AA to 504-FF.

We also do not list those figures listed in some of the plaintiffs' analyses as being differentials associated with black females, as the figures listed therein were obtained by simply adding the coefficient obtained for the race dummy variable to that obtained for the sex dummy variable. *Cf.* Testimony of Dr. Janice Madden at 129.

The dependent variable in each regression is the natural logarithm of salary. Different sets of controls for personal characteristics (sets "A", "B1", "B2", "C1", "C2", and "D") and for job characteristics (sets "a" and "b") are used as explanatory variables. All regressions were of the ordinary least squares type. The coefficient of the dummy variable for group status, multiplied by 100 will give the approximate percentage differential in salary, relative to white males, assertedly due to group status.[86,87]

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[86]Thus, looking at regression (2) of the 1969, 1970, 1971, and 1972 tables following, "[b]lack males earned 20.1 to 30.9 percent less than white males of equivalent age and education . . ." Plaintiffs' Exhibit 501, at 2.

[87]We do not list R^2 in this opinion because of its limited utility. *See* section VI(D), *supra*. Similarly, we do not list the results of F tests because of their limited utility. *See* R. Pindyck & D. Rubinfeld, *Econometric Models and Economic Forecasts* 60 (1976).

All the tables for plaintiffs following were drawn up on the assumption that where the plaintiffs had presented results in the form of percentages, those percentages were simply the coefficients multiplied by 100. This assumption is not critical to any of our analyses. *See* n.110, *infra*. A blank in the "Other" column does not necessarily mean that a dully variable for the "Other" group status was not included in the regression; this regression result was sometimes not presented in the report from which the table was drawn.

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1969

Regression	Source number of employees[89]	Run on both types of employees or one of (exempt/ nonexempt) employees
I.		
Regression (1)	Plaintiffs' Exhibit 501 (at Table 1)	both
Regression (2)	Plaintiffs' Exhibit 501 (at Table 1)	both
Regression (3)	Plaintiffs' Exhibit 501 (at Table 1)	both
II.		
Regression (4)	Plaintiffs' Exhibit 501 (at Table 2)	nonexempts
Regression (5)	Plaintiffs' Exhibit 501 (at Table 2)	nonexempts
III.		
Regression (6)	Plaintiffs' Exhibit 501 (at Table 3)	exempts
Regression (7)	Plaintiffs' Exhibit 501 (at Table 3)	exempts
IV.		
Regression (8)	Plaintiffs' Exhibit 1308 (1307)	both
Regression (9)	Plaintiffs' Exhibit 1308 (1307)	both
Regression (10)	Plaintiffs' Exhibit 1308 (1307)	both
V.		
Regression (11)	Plaintiffs' Exhibit 1309 (Table 1) [*See also* Testimony of Dr. Janice Madden at 67-68 & 70; compare with regression above; section VIII(A)(1)(iii), *infra*]	both
Regression (12)	Plaintiffs' Exhibit 1309 (Table 1) [*See also* Testimony of Dr. Janice Madden at 67-68 & 70; compare with regression above; section VIII(A)(1)(iii), *infra*.]	both

*Statistically significant coefficient at the 5% level (same notation used for 1970-1978 tables).

**Statistically significant coefficient at the 1% level (same notation used for 1970-1978 tables).

[88]For this and tables for other years, *see* section VIII(A)(1)(i), *infra*.

[89]Listed above and in tables for other years only where reported in associated, non-computer-printout, exhibit; where a digit is illegible in such associated reports, a hyphen is placed. *Cf.* section VII(B)(2) n.91, *infra*.

1969

Explanatory variables		Coefficient of dummy variables (such that comparison is white female/white male or black male/white male)			Differential due to differences in occupational distributions[88]	
Personal characteristic variables	Job variables	Females	Blacks	Other	Females	Blacks
none		— .628**	— .342**			
set "A"	none	— .389**	— .201**		— .233	— .05
set "A"	set "a"	— .156**	— .151**			
none		— .184**	— .201**			
set "A"	none	— .161**	— .166**			
none		— .423**				
set "A"	none	— .350**				
none		—.6283**	—.3415**	—.2223**		
set "Bl"	none	—.3892**	—.1969**	—.0613**		
set "Cl"	none	—.1453**	—.2327**	—.0879**		
set "Bl"	none	— .389**	— .197**			
set "Bl"	set "a"	— .168**	— .152**		— .221	— .045

1970

Regression	Source number of employees	Run on both types of employees or one of (exempt/ nonexempt) employees
I.		
Regression (1)	Plaintiffs' Exhibit 501 (at Table 1)	both
Regression (2)	Plaintiffs' Exhibit 501 (at Table 1)	both
Regression (3)	Plaintiffs' Exhibit 501 (at Table 1)	both
II.		
Regression (4)	Plaintiffs' Exhibit 501 (at Table 2)	nonexempts
Regression (5)	Plaintiffs' Exhibit 501 (at Table 2)	nonexempts
III.		
Regression (6)	Plaintiffs' Exhibit 501 (at Table 3)	exempts
Regression (7)	Plaintiffs' Exhibit 501 (at Table 3)	exempts
IV.		
Regression (8)	Plaintiffs' Exhibit 1308 (at Table 2) (1481)	both
Regression (9)	Plaintiffs' Exhibit 1308 (at Table 2) (1481)	both
Regression (10)	Plaintiffs' Exhibit 1308 (at Table 2) (1481)	both
V.		
Regression (11)	Plaintiffs' Exhibit 1309 (Table 1) [*See also* Testimony of Dr. Janice Madden at 67-68 & 70; compare with regression (9); section VIII(A)(1)(iii), *infra.*]	both
Regression (12)	Plaintiffs' Exhibit 1309 (Table 1) [*See also* Testimony of Dr. Janice Madden at 67-68 & 70; compare with regression (9); section VIII(A)(1)(iii), *infra.*]	both

1970

Explanatory variables		Coefficient of dummy variables (such that comparison is white female/white male or black male/white male)			Differential due to differences in occupational distributions	
Personal characteristic variables	Job variables	Females	Blacks	Other	Females	Blacks
none		— .603**	— .442**			
set "A"	none	— .375**	— .309**		— .239	— .058
set "A"	set "a"	— .136**	— .251**			
none		— .164**	— .295**			
set "A"	none	— .137**	— .266**			
none		— .441**				
set "A"	none	— .299**				
none		—.5966**	—.3608**	—.2194**		
set "Bl" plus dummy variable for being hired in 1969	none	—.3601**	—.2259**	—.0735**		
set "Cl" plus dummy variable for being hired in 1969	none	—.1432**	—.2503**	—.0979**		
set "Bl" plus dummy variable for being hired in 1969	none	— .360**	— .266**			
					— .226	— .054
set "Bl" plus dummy variable for being hired in 1969	set "a"	— .134**	— .172**			

1971

Regression	Source number of employees	Run on both types of employees or one of (exempt/ nonexempt) employees
I.		
Regression (1)	Plaintiffs' Exhibit 501 (at Table 1)	both
Regression (2)	Plaintiffs' Exhibit 501 (at Table 1)	both
Regression (3)	Plaintiffs' Exhibit 501 (at Table 1)	both
II.		
Regression (4)	Plaintiffs' Exhibit 501 (at Table 2)	nonexempts
Regression (5)	Plaintiffs' Exhibit 501 (at Table 2)	nonexempts
III.		
Regression (6)	Plaintiffs' Exhibit 501 (at Table 3)	exempts
Regression (7)	Plaintiffs' Exhibit 501 (at Table 3)	exempts
IV.		
Regression (8)	Plaintiffs' Exhibit 1308 (at Table 3) (1445)	both
Regression (9)	Plaintiffs' Exhibit 1308 (at Table 3) (1445)	both
Regression (10)	Plaintiffs' Exhibit 1308 (at Table 3) (1445)	both
V.		
Regression (11)	Plaintiffs' Exhibit 1309 (Table 1) [*See also* Testimony of Dr. Janice Madden at 67-68 & 70; compare with regression (9); section VIII(A)(1)(iii), *infra*]	both
Regression (12)	Plaintiffs' Exhibit 1309 (Table 1) [*See also* Testimony of Dr. Janice Madden at 67-68 & 70; compare with regression (9); section VIII(A)(1)(iii), *infra*]	both

1971

Explanatory variables		Coefficient of dummy variables (such that comparison is white female/white male or black male/white male)			Differential due to differences in occupational distributions	
Personal characteristic variables	Job variables	Females	Blacks	Other	Females	Blacks
none		— .620**	— .370**			
set "A"	none	— .397**	— .220**		— .262	— .056
set "A"	set "a"	— .135**	— .164**			
none		— .141**	— .214**			
set "A"	none	— .131**	— .181**			
none		— .461**				
set "A"	none	— .333**				
none		—.6198**	—.3698**	+.2153**		
set "Bl" plus dummy variables (i) for being hired in 1969, and (ii) for being hired in 1970	none	—.3773**	—.2072**	—.0736**		
set "Cl" plus dummy variables (i) for being hired in 1969, and (ii) for being hired in 1970	none	—.1677**	—.2296**	—.0918**		
set "Bl" plus dummy variables (i) for being hired in 1969; and (ii) for being hired in 1970	none	— .377**	— .207**		— .234	— .048
set "Bl" plus dummy variables (i) for being hired in 1969; and (ii) for being hired in 1970	set "a"	— .143**	— .159**			

1972

Regression	Source number of employees	Run on both types of employees or one of (exempt/ nonexempt) employees
I.		
Regression (1)	Plaintiffs' Exhibit 501 (at Table 1)	both
Regression (2)	Plaintiffs' Exhibit 501 (at Table 1)	both
Regression (3)	Plaintiffs' Exhibit 501 (at Table 1)	both
II.		
Regression (4)	Plaintiffs' Exhibit 501 (at Table 2)	nonexempts
Regression (5)	Plaintiffs' Exhibit 501 (at Table 2)	nonexempts
III.		
Regression (6)	Plaintiffs' Exhibit 501 (at Table 3)	exempts
Regression (7)	Plaintiffs' Exhibit 501 (at Table 3)	exempts
IV.		
Regression (8)	Plaintiffs' Exhibit 1308 (at Table 4) (1410)	both
Regression (9)	Plaintiffs' Exhibit 1308 (at Table 4) (1410)	both
Regression (10)	Plaintiffs' Exhibit 1308 (at Table 4) (1410)	both
V.		
Regression (11)	Plaintiffs' Exhibit 1309 (Table 1) [*See also* Testimony of Dr. Janice Madden at 67-68 & 70; compare with Regression (9) above; section VIII(A)(1)(iii), *infra*]	both
Regression (12)	Plaintiffs' Exhibit 1309 (Table 1) [*See also* Testimony of Dr. Janice Madden at 67-68 & 70; compare with Regression (9) above; section VIII(A)(1)(iii), *infra*]	both

1972

Explanatory variables		Coefficient of dummy variables (such that comparison is white female/white male or black male/white male)			Differential due to differences in occupational distributions	
Personal characteristic variables	Job variables	Females	Blacks	Other	Females	Blacks
none		— .626**	— .397**			
set "A"	none	— .391**	— .239**		— .262	— .065
set "A"	set "a"	— .129**	— .174**			
none		— .105**	— .228**			
set "A"	none	— .105**	— .193**			
none		— .443**				
set "A"	none	— .333**				
none		—.6279**	—.3973**	—.2287**		
set "Bl" plus dummy variables (i) for being hired in 1969, (ii) for being hired in 1970, and (iii) for being hired in 1971	none	—.3739**	—.2241**	—.0856**		
set "Cl" plus dummy variables (i) for being hired in 1969, (ii) for being hired in 1970, and (iii) for being hired in 1971	none	—.1521**	—.2492**	—.1077**		
set "Bl" plus dummy variables (i) for being hired in 1969, (ii) for being hired in 1970, and (iii) for being hired in 1971	none	— .375**	— .224**		— .238	— .056
set "Bl" plus dummy variables (i) for being hired in 1969, (ii) for being hired in 1970, and (iii) for being hired in 1971	set "a"	— .136**	— .168**			

1973

Regression	Source number of employees	Run on both types of employees or one of (exempt/ nonexempt) employees
I.		
Regression (1)	Plaintiffs' Exhibit 504-A and 504-E (1821)	both
Regression (2)	Plaintiffs' Exhibit 504-A and 504-E (1821)	both
Regression (3)	Plaintiffs' Exhibit 504-A and 504-E (1614)	both
II.		
Regression (4)	Plaintiffs' Exhibit 504 and "Appendix I" (1141)	nonexempt
Regression (5)	Plaintiffs' Exhibit 504 and "Appendix I" (1141)	nonexempt
Regression (6)	Plaintiffs' Exhibit 504 and "Appendix I" (1026)	nonexempt
III.		
Regression (7)	Plaintiffs' Exhibit 504 and "Appendix I" (684)	exempt
Regression (8)	Plaintiffs' Exhibit 504 and "Appendix I" (684)	exempt
Regression (9)	Plaintiffs' Exhibit 504 and "Appendix I" (588)	exempt
IV.		
Regression (10)	Plaintiffs' Exhibit 1308 and "Appendix I" (1601)	both
Regression (11)	Plaintiffs' Exhibit 1308 and "Appendix I" (1601)	both
Regression (12)	Plaintiffs' Exhibit 1308 and "Appendix I" (1601)	both
V.		
Regression (13)	Plaintiffs' Exhibit 1309 (Table 1) [*See also* Testimony of Dr. Janice Madden at 67-68 & 70; compare with Regression (11) above; section VIII(A)(1)(iii), *infra*]	both
Regression (14)	Plaintiffs' Exhibit 1309 (Table 1) [*See also* Testimony of Dr. Janice Madden at 67-68 & 70; compare with Regression (11) above; section VIII(A)(1)(iii), *infra*]	both

1973

Explanatory variables		Coefficient of dummy variables (such that comparison is white female/white male or black male/white male)			Differential due to differences in occupational distributions	
Personal characteristic variables	Job variables	Females	Blacks	Other	Females	Blacks
none		—.6204**	—.3379**	—.2083**		
set "D"	none	—.3750**	—.1677**	—.0692*	—.2935	—.0680
set "D"	set "b"	—.0815**	—.0997**	—.0489**		
none		—.0525**	—.1637**	—.1141**		
set "D"	none	—.0672**	—.1189**	—.0702**	—.0610	—.0751
set "D"	set "b" but without dummy variables for "bank officer" or "other exempt"	—.0062	—.0438**	—.0242**		
none		—.4422**	—.4501*	—.1835		
set "D"	none	—.3114**	—.3452*	—.1660	—.1687	—.1573
set "D"	set "b" but without dummy variable for "other exempt"	—.1427**	—.1879*	—.0871		
none		—.6452**	—.3134**	—.2009**		
set "B2"	none	—.3755**	—.1557**	—.0768**		
set "C2"	none	—.2981**	—.1618**	—.0839**		
set "B2"	none	— .375**	— .156**			
set "B2"	set "b"	— .079**	— .102**		— .296	— .054

1974

Regression	Source number of employees	Run on both types of employees or one of (exempt/ nonexempt) employees
I.		
Regression (1)	Plaintiffs' Exhibit 504-E and 504-K (2,023)	both
Regression (2)	Plaintiffs' Exhibit 504-E and 504-K (2,023)	both
Regression (3)	Plaintiffs' Exhibit 504-E and 504-K (2,023)	both
II.		
Regression (4)	Plaintiffs' Exhibit 504 and "Appendix I" (1,254)	nonexempt
Regression (5)	Plaintiffs' Exhibit 504 and "Appendix I" (1,254)	nonexempt
Regression (6)	Plaintiffs' Exhibit 504 and "Appendix I" (1,165)	nonexempt
III.		
Regression (7)	Plaintiffs' Exhibit 504 and "Appendix I" (769)	exempt
Regression (8)	Plaintiffs' Exhibit 504 and "Appendix I" (769)	exempt
Regression (9)	Plaintiffs' Exhibit 504 and "Appendix I" (646)	exempt
IV.		
Regression (10)	Plaintiffs' Exhibit 1308 and "Appendix I" (1,795)	both
Regression (11)	Plaintiffs' Exhibit 1308 and "Appendix I" (1,795)	both
Regression (12)	Plaintiffs' Exhibit 1308 and "Appendix I" (1,795)	both
V.		
Regression (13)	Plaintiffs' Exhibit 1309 (Table 1) [*See also* Testimony of Dr. Janice Madden at 67-68 & 70; compare with Regression (11) above; section VIII(A)(1)(iii), *infra*]	both
Regression (14)	Plaintiffs' Exhibit 1309 (Table 1) [*See also* Testimony of Dr. Janice Madden at 67-68 & 70; compare with Regression (11) above; section VIII(A)(1)(iii), *infra*]	both

1974

Explanatory variables		Coefficient of dummy variables (such that comparison is white female/white male or black male/white male)			Differential due to differences in occupational distributions	
Personal characteristic variables	Job variables	Females	Blacks	Other	Females	Blacks
none		—.6151**	—.3388**	—.2069**		
set "D"	none	—.3755**	—.1873**	—.0917	—.2986	—.0952
set "D"	set "b"	—.0769**	—.0921**	—.0528**		
none		—.0327**	—.1482**	—.0915**		
set "D"	none	—.0514**	—.1191**	—.0684**	—.0509	—.0800
set "D"	set "b" but without dummy variables for "bank officer" or "other exempt"	—.0005	—.0391**	—.0288**		
none		—.4437**	—.4263**	—.2527**		
set "D"	none	—.3237**	—.1528	—.1702**	—.1753	—.1051
set "D"	set "b" but without dummy variable for "other exempt"	—.1484**	—.0477	—.1005*		
none		—.6113**	—.3313**	—.2031**		
set "B2"	none	—.3633**	—.1875**	—.1048**		
set "C2"	none	—.2935**	—.1928**	—.1096**		
set "B2"	none	— .363**	— .188**			
set "B2"	set "b"	— .074**	— .098**		— .289	— .090

1975

Regression	Source number of employees	Run on both types of employees or one of (exempt/ nonexempt) employees
I.		
Regression (1)	Plaintiffs' Exhibit 504-L 504-E (2,064)	both
Regression (2)	Plaintiffs' Exhibit 504-L 504-E (2,064)	both
Regression (3)	Plaintiffs' Exhibit 504-L 504-E (1,831)	both
II.		
Regression (4)	Plaintiffs' Exhibit 504 and "Appendix I" (1,263)	nonexempt
Regression (5)	Plaintiffs' Exhibit 504 and "Appendix I" (1,263)	nonexempt
Regression (6)	Plaintiffs' Exhibit 504 and "Appendix I" (1,170)	nonexempt
III.		
Regression (7)	Plaintiffs' Exhibit 504 and "Appendix I" (801)	exempt
Regression (8)	Plaintiffs' Exhibit 504 and "Appendix I" (801)	exempt
Regression (9)	Plaintiffs' Exhibit 504 and "Appendix I" (-61)	exempt
IV.		
Regression (10)	Plaintiffs' Exhibit 1308 and "Appendix I" (1,818)	both
Regression (11)	Plaintiffs' Exhibit 1308 and "Appendix I" (1,818)	both
Regression (12)	Plaintiffs' Exhibit 1308 and "Appendix I" (1,818)	both
V.		
Regression (13)	Plaintiffs' Exhibit 1309 (Table 1) [*See also* Testimony of Dr. Janice Madden at 67-68 & 70; compare with Regression (11) above; section VIII(A)(1)(iii), *infra*]	both
Regression (14)	Plaintiffs' Exhibit 1309 (Table 1) [*See also* Testimony of Dr. Janice Madden at 67-68 & 70; compare with Regression (11) above; section VIII(A)(1)(iii), *infra*]	both

1975

Explanatory variables		Coefficient of dummy variables (such that comparison is white female/white male or black male/white male)			Differential due to differences in occupational distributions	
Personal characteristic variables	Job variables	Females	Blacks	Other	Females	Blacks
none		—.6072**	—.3620**	—.2087**		
set "D"	none	—.3621**	—.2025**	—.0857**	—.2750	—.0987
set "D"	set "b"	—.0871**	—.1038**	—.0547**		
none		—.0180**	—.1462**	—.0908**		
set "D"	none	—.0425**	—.1270**	—.0684**	—.0444	—.0850
set "D"	set "b" but without dummy variables for "bank officer" or "other exempt"	—.0019	—.0420**	—.0268**		
none		—.4619**	—.4636**	—.1729*		
set "D"	none	—.3375**	—.1492*	—.0925	—.1639	—.0507
set "D"	set "b" but without dummy variable for "other exempt"	—.1736**	—.0985*	—.0650		
none		—.6100**	—.3524**	—.2046**		
set "B2"	none	—.3397**	—.1972**	—.0914**		
set "C2"	none	—.2518**	—.2013**	—.0940**		
set "B2"	none	— .340**	— .197**			
set "B2"	set "b"	— .079**	— .105**		— .261	— .092

1976

Regression	Source number of employees	Run on both types of employees or one of (exempt/ nonexempt) employees
I.		
Regression (1)	Plaintiffs' Exhibit 504-M 504-E (1,937)	both
Regression (2)	Plaintiffs' Exhibit 504-M 504-E (1,937)	both
Regression (3)	Plaintiffs' Exhibit 504-M 504-E (1,745)	both
II.		
Regression (4)	Plaintiffs' Exhibit 504 and "Appendix I" (1,198)	nonexempt
Regression (5)	Plaintiffs' Exhibit 504 and "Appendix I" (1,198)	nonexempt
Regression (6)	Plaintiffs' Exhibit 504 and "Appendix I" (1,133)	nonexempt
III.		
Regression (7)	Plaintiffs' Exhibit 504 and "Appendix I" (739)	exempt
Regression (8)	Plaintiffs' Exhibit 504 and "Appendix I" (739)	exempt
Regression (9)	Plaintiffs' Exhibit 504 and "Appendix I" (612)	exempt
IV.		
Regression (10)	Plaintiffs' Exhibit 1308 and "Appendix I" (1,738)	both
Regression (11)	Plaintiffs' Exhibit 1308 and "Appendix I" (1,738)	both
Regression (12)	Plaintiffs' Exhibit 1308 and "Appendix I" (1,738)	both
V.		
Regression (13)	Plaintiffs' Exhibit 1309 (Table 1) [*See also* Testimony of Dr. Janice Madden at 67-68 & 70; compare with Regression (11) above; section VIII(A)(1)(iii), *infra*]	both
Regression (14)	Plaintiffs' Exhibit 1309 (Table 1) [*See also* Testimony of Dr. Janice Madden at 67-68 & 70; compare with Regression (11) above; section VIII(A)(1)(iii), *infra*]	both

1976

Explanatory variables		Coefficient of dummy variables (such that comparison is white female/white male or black male/white male)			Differential due to differences in occupational distributions	
Personal characteristic variables	Job variables	Females	Blacks	Other	Females	Blacks
none		—.5855**	—.3578**	—.2000**		
set "D"	none	—.3349**	—.2049**	—.0885**		
set "D"	set "b"	—.0761**	—.0986**	—.0473**	—.2588	—.1063
none		—.0228	—.1346**	—.0840**		
set "D"	none	—.0478**	—.1216**	—.0667**		
set "D"	set "b" but without dummy variables for "bank officer" or "other exempt"	.0106	—.0399**	—.0179*	—.0584	—.0817
none		—.4385**	—.4282**	—.1534		
set "D"	none	—.2945**	—.1193	—.1221		
set "D"	set "b" but without dummy variable for "other exempt"	—.1419**	—.0838	—.0636	—.1526	—.0355
none		—.5896**	—.3416**	—.2072**		
set "B2"	none	—.3009**	—.1897**	—.0879**		
set "C2"	none	—.2264**	—.1945**	—.0909**		
set "B2"	none	— .301**	— .190**			
set "B2"	set "b"	— .067**	— .099**		— .234	— .091

1977

Regression	Source number of employees	Run on both types of employees or one of (exempt/ nonexempt) employees
I.		
Regression (1)	Plaintiffs' Exhibit 504-N 504-E (1,991)	both
Regression (2)	Plaintiffs' Exhibit 504-N 504-E (1,991)	both
Regression (3)	Plaintiffs' Exhibit 504-N 504-E (1,765)	both
II.		
Regression (4)	Plaintiffs' Exhibit 504 and "Appendix I" (1,229)	nonexempt
Regression (5)	Plaintiffs' Exhibit 504 and "Appendix I" (1,229)	nonexempt
Regression (6)	Plaintiffs' Exhibit 504 and "Appendix I" (1,151)	nonexempt
III.		
Regression (7)	Plaintiffs' Exhibit 504 and "Appendix I" (762)	exempt
Regression (8)	Plaintiffs' Exhibit 504 and "Appendix I" (762)	exempt
Regression (9)	Plaintiffs' Exhibit 504 and "Appendix I" (614)	exempt
IV.		
Regression (10)	Plaintiffs' Exhibit 1308 and "Appendix I" (1,757)	both
Regression (11)	Plaintiffs' Exhibit 1308 and "Appendix I" (1,757)	both
Regression (12)	Plaintiffs' Exhibit 1308 and "Appendix I" (1,757)	both
V.		
Regression (13)	Plaintiffs' Exhibit 1309 (Table 1) [*See also* Testimony of Dr. Janice Madden at 67-68 & 70; compare with Regression (11) above; section VIII(A)(1)(iii), *infra*]	both
Regression (14)	Plaintiffs' Exhibit 1309 (Table 1) [*See also* Testimony of Dr. Janice Madden at 67-68 & 70; compare with Regression (11) above; section VIII(A)(1)(iii), *infra*]	both

1977

Explanatory variables		Coefficient of dummy variables (such that comparison is white female/white male or black male/white male)			Differential due to differences in occupational distributions	
Personal characteristic variables	Job variables	Females	Blacks	Other	Females	Blacks
none		—.5676**	—.3653**	—.2057**		
set "D"	none	—.3286**	—.2043**	—.1110**		
set "D"	set "b"	—.0716**	—.1037**	—.0564**	—.2570	—.1006
none		—.0382**	—.1507**	—.0764**		
set "D"	none	—.0629**	—.1273**	—.0692**		
set "D"	set "b" but without dummy variables for "bank officer" or "other exempt"	.0047	—.0492**	—.0167	—.0676	—.0781
none		—.4207**	—.4184**	—.1889*		
set "D"	none	—.2777**	—.1329	—.1261		
set "D"	set "b" but without dummy variable for "other exempt"	—.1181**	—.0704	—.0708*	—.1596	—.0625
none		—.5754**	—.3585**	—.1967**		
set "B2"	none	—.2907**	—.1901**	—.0934**		
set "C2"	none	—.2125**	—.1973**	—.0981**		
set "B2"	none	— .291**	— .190**			
set "B2"	set "b"	— .065**	— .106**		— .236	— .084

1978

Regression	Source number of employees	Run on both types of employees or one of (exempt/ nonexempt) employees
I.		
Regression (1)	Plaintiffs' Exhibit 504-O 504-E (2,012)	both
Regression (2)	Plaintiffs' Exhibit 504-O 504-E (2,012)	both
Regression (3)	Plaintiffs' Exhibit 504-O 504-E (1,806)	both
II.		
Regression (4)	Plaintiffs' Exhibit 504 and "Appendix I" (1,238)	nonexempt
Regression (5)	Plaintiffs' Exhibit 504 and "Appendix I" (1,238)	nonexempt
Regression (6)	Plaintiffs' Exhibit 504 and "Appendix I" (1,–86)	nonexempt
III.		
Regression (7)	Plaintiffs' Exhibit 504 and "Appendix I" (774)	exempt
Regression (8)	Plaintiffs' Exhibit 504 and "Appendix I" (774)	exempt
Regression (9)	Plaintiffs' Exhibit 504 and "Appendix I" (620)	exempt
IV.		
Regression (10)	Plaintiffs' Exhibit 1308 and "Appendix I" (1,798)	both
Regression (11)	Plaintiffs' Exhibit 1308 and "Appendix I" (1,798)	both
Regression (12)	Plaintiffs' Exhibit 1308 and "Appendix I" (1,798)	both
V.		
Regression (13)	Plaintiffs' Exhibit 1309 (Table 1) [*See also* Testimony of Dr. Janice Madden at 67-68 & 70; compare with Regression (11) above; section VIII(A)(1)(iii), *infra*]	both
Regression (14)	Plaintiffs' Exhibit 1309 (Table 1) [*See also* Testimony of Dr. Janice Madden at 67-68 & 70; compare with Regression (11) above; section VIII(A)(1)(iii), *infra*]	both

1978

Explanatory variables		Coefficient of dummy variables (such that comparison is white female/white male or black male/white male)			Differential due to differences in occupational distributions	
Personal characteristic variables	Job variables	Females	Blacks	Other	Females	Blacks
none		—.5659**	—.3573**	—.2091**		
set "D"	none	—.3236**	—.1985**	—.0943**	—.2451	—.1037
set "D"	set "b"	—.0785**	—.0948**	—.0459**		
none		—.0402**	—.1425**	—.0668**		
set "D"	none	—.0632**	—.1175**	—.0573**	—.0581	—.0778
set "D"	set "b" but without dummy variables for "bank officer" or "other exempt"	—.0051	—.0397**	—.0120		
none		—.4248**	—.3801**	—.1405		
set "D"	none	—.2850**	—.1602*	—.0868	—.1584	—.0885
set "D"	set "b" but without dummy variable for "other exempt"	—.1266**	—.0717	—.0743*		
none		—.5656**	—.3504**	—.1916**		
set "B2"	none	—.2900**	—.1844**	—.0788**		
set "C2"	none	—.2030**	—.1915**	—.0851**		
set "B2"	none	— .290**	— .184**			
set "B2"	set "b"	— .072**	— .096**		— .218	— .088

Set "A"

— education (highest grade completed)

— age (in years) (as a proxy for general labor market experience)

— age (squared)

See Plaintiffs' Exhibit 501, at 1; Plaintiffs' Exhibit 504 at Table 1; Testimony of Dr. Janice Madden at 12; Testimony of Dr. Francine Blau at 17-19.

Set "B1"

— education (years)

— dummy variable (for attaining exactly 12 years of education)

— dummy variable (for attaining exactly 16 years of education)

— dummy variable (for attaining postgraduate education)

— age in months minus 72 (as a proxy for work experience)

— age in months minus 72 [squared]

See Plaintiffs' Exhibit 1308, at Table 1 and 1-2; Testimony of Dr. Janice Madden at 19-23.

Set "B2"

— Identical with Set "B1" with following change:

"Rather than indexing work experience . . . by age, total possible months of prebank experience . . . were determined by subtracting months of education, months of bank experience, and 72 from age in months. As before, this experience term is squared . . . to test for decreases in the salary effects of large amounts of prebank experience."

See Plaintiffs' Exhibit 1308, at 3.

Set "C1"

— identical with set "B1" plus additional variable:

— sex-experience interaction term (as one way of remedying overestimation of actual experience for women when using age as a proxy for experience)

See Plaintiffs' Exhibit 1308 at Table 1 and 3; Testimony of Dr. Janice Madden at 25-26.

Set "C2"

— identical with set "B2" plus additional variable:

"an interaction term . . . which for this period is the interaction between sex and prebank experience . . . The estimates of salary differences attributed to sex and race . . . assume that the point effects of sex and prebank experience are entirely due to the overestimation of female prebank experience. As above, this results in unreasonably conservative estimates of the effects of race and sex on salary."

See Plaintiff's Exhibit 1308, at 3.

Set "D"

— identical with set "A" plus two additional variables:

— bank experience (in years) [using data on actual Republic National Bank hire dates]

— bank experience [squared]

See Testimony of Dr. Francine Blau at 20-21 & 88-92; Plaintiffs' Exhibit 504-A.

Set "a"

— bank officer (dummy variable equaling 1 if employee is a bank officer, and 0 otherwise)

— other exempt (dummy variable equaling 1 if employee is in another exempt category and 0 otherwise)

See Plaintiffs' Exhibit 501, at 1; Plaintiffs' Exhibit 504, at Table 2; Testimony of Dr. Janice Madden at 12-13 & 15; Testimony of Dr. Francine Blau at 24.

Set "b"

— identical with set "a" plus one additional variable:

— Hay points — Hay points associated with employee's occupational category

See Plaintiffs' Exhibit 504-B. *See also* Testimony of Dr. Janice Madden at 68 (re Hay Point conversions used for nonexempts) & 96-97; Testimony of Dr. David Morgan (re assigning of midpoint of Hay range applicable to grade of nonexempt employees).

2. *The Bank's Models.*

Dr. Stoikov[90] does provide a multiple regression model to explain salary differentials at Republic, whose underlying approach has been set forth at section VI(C), *supra*. *See, e.g.*, Defendant's Exhibit 32 and 32'. Her analysis differed in several major ways from the plaintiffs' analysis. First, Dr. Stoikov sought only to explain salary differentials at a point in time in one year (1978) rather than, as plaintiffs did, at a point in time in each of the years from 1969 to 1978. Second, she used samples[91], and drawing in part on

[90]Judith Stoikov, a Ph.D. in economics, is a Senior Consultant with National Economic Research Associates, a firm of consulting economists. At this firm, she has, among other things, assisted clients in developing analyses of their employment practices for submission to the Office of Federal Contract Compliance and developed responses to charges of discrimination brought to court. *See* Defendant's Exhibit 32 (at Appendix A). Prior to joining this firm, she was an Associate Professor in the Economics Department of the State University of New York at Cortland, where she has taught courses in, among other things, the economics of slavery and discrimination and quantitative methods in economic analysis. *See* Testimony of Dr. Judith Stoikov at 8.

[91]*Cf.* Testimony of Dr. Janice Madden at 35 & 37-42 (re Plaintiffs' Exhibit 1308 regressions using universe rather than sample, examination of possible effects of missing data, and statement that "We have consistently attempted to analyze the full bank force. There is no sampling here.").

information from a questionnaire distributed to those employees which she chose to use as her sample for her regressions, Dr. Stoikov included more explanatory variables in her model than Drs. Blau and Madden, such as "relatedness of education, prior experience, [and] interests in assuming additional responsibilities". *See* Defendant's Exhibit 32, at 16; Testimony of Dr. Judith Stoikov at 95 & 98-101. A third major distinction between Dr. Stoikov's model and the models Dr. Blau and Madden rely on is that Dr. Stoikov believes that, as indicated by a "Chow" test, there are two different pay structures at the Bank, one for professionals and the other for non-professionals. Thus, with certain adjustments, Dr. Stoikov believed separate regressions for professionals and non-professionals were called for, and so ran separate regressions. *See* Testimony of Dr. Judith Stoikov at 127-30. (Drs. Blau and Madden did run separate regressions for exempts and nonexempts, on an *arguendo* basis, stating that to do this would introduce other problems.)[92] Fourth, her dummy variable-type comparisons were generally between the females and males, and between the blacks and whites; in contrast, the plaintiffs use "white males" as the base for comparison purposes in all their regressions, measured against white females and black males. Dr. Stoikov's other comparisons involve not dummy variables but "Chow" tests to determine whether the male and female pay structures and black and nonblack pay structures are equal. *See* Defendant's Exhibit 32, at 21; section VI(E), *supra*. Fifth, and foremost, in none of her group status

[92]Specifically, the plaintiffs' experts raised the "truncation bias" problems stemming from running separate regressions for professionals and nonprofessionals. Dr. Stoikov stated that if a sample is stratified on the basis of an endogenous variable there might be a possibility of truncation bias but that she stratified on the basis of exogenous variables. She said she "designed the sample to be stratified on the basis of status at hire and this would have been the way of avoiding truncation bias problems." Testimony of Dr. Judith Stoikov at 297. She stated that this *a priori* expectation was confirmed by a sophisticated statistical test. *See id.* at 300-301 and 408-11.

See Defendant's Post-Trial Brief at 497 n.204 and Defendant's Exhibit 32 at 6 (re professional/nonprofessional, exempt/nonexempt).

regressions does Dr. Stoikov explicitly control for job characteristics (other than by running separate regressions for professionals and nonprofessionals).

The variables in Dr. Stoikov's pay regressions were listed in her testimonial exhibit 12, reproduced in part below. As can be seen, in addition to the salary and group status dummy variables, there are six collections of explanatory variables. *See* Testimony of Dr. Judith Stoikov at 106-22 & 135.

VARIABLES USED IN PAY REGRESSIONS

Variable Description

A. Salary as of Year-End 1978
(in natural logarithms and includes shift differential)

B. Sex = Female or Male

C. Race = Black or Nonblack

D. Length of Service at RNB
(in months, measured in natural logarithms)

E. Highest Level of Education
(either at time of hire or as of year-end 1978)
Less than high school
High school graduate
Post high school technical training
Some college
Associates degree
Some college or Associates degree
Bachelors degree (at hire)
Bachelors degree (by year-end 1978)
Masters degree (at hire)
Masters degree (by year-end 1978)
Bachelors degree or higher (at hire)
Bachelors degree or higher (by year-end 1978)

F. Specialized Areas of Study for Bachelors Degree or Higher
   Banking
   Law

G. Prior Experience
   1. Months of Prior Experience by Type
      Technical
      Clerical supervisory
      Secretarial
      Other clerical (except secretarial)
      Managerial or professional (except banking)
      Bank-related professional or managerial
      Total non-RNB work experience
      At time of hire
      As of year-end 1978 (includes work experience during service breaks)
      Total clerical nonsupervisory
   2. Months not Working and Not in School or Military
      At time of hire
      As of year-end 1978

H. Investments in RNB Career
   a. Completed AIB Certificate, offsite skill development or management training program since hire
   b. Frequency of overtime worked (measured in six ranges)

I. Average Number of Occasions Absent from Work

J. Measures of Career Motivation
   Career Motivation I (for Professional Regressions):
   Importance of career (measured in six categories)
   Willingness to accept promotion if it entails:*
      1. taking on additional duties
      2. working weekends or nights
      3. assuming a high risk/large reward job
      4. additional performance pressures

Career Motivation II (for Nonprofessional Regressions):

Willingness to accept promotion if it entails: *
4. additional performance pressures
5. travel away from Dallas

Aspires to higher skill level at RNB
Job requested at time of hire
(measured in two skill categories)
(no request was made)

Plans to attend skill development courses during Bank time

Nonbank commitments have influenced time available to advance career

*Promotion characteristics 1 through 4 were used as a single measure in the professional regressions. This measure is labeled "career motivation" or "willing to accept promotion under specified conditions" on the tables and "MOTIVATE" on the computer printout. Promotion characteristics 4 and 5 were the only Career Motivation measures used in the male/female nonprofessional regressions.

We summarize below the results of Dr. Stoikov's regressions wherein she used dummy variables to denote group status. Interpreting these tables is not an involved process. In the first table below, for instance, the left half of the table looks at professionals at time of hire whereas the right portion of the table looks at professionals as of 1978 (which group of course includes those who were hired as nonprofessionals but became professionals by 1978). *Cf.* Testimony of Dr. Judith Stoikov at 131. As a first step, Dr. Stoikov regressed pay on sex alone, obtaining a negative coefficient equivalent to a negative 30.44% male/female pay disparity (when using the stratification at hire). But after adding all her other variables to the regression equation, she found

that the male/female pay disparity was a statistically insignificant negative 6.99 percent.

Status/Variables Controlled Cumulatively	Stratified by Status at Hire		Stratified by Status at Year-end, 1978	
	Female/ Male Pay Disparity (Percent) (1)	t-Statistic (2)	Female/ Male Pay Disparity (Percent) (3)	t-Statistic (4)
Status = Professional				
Sex (1 = Female), Unadjusted	—30.44	—5.87**	—25.75	—5.03**
Sex (1 = Female), Adjusted for:				
Service at RNB	—21.98	—4.10**	—18.20	—3.42**
Highest Educational Level	—17.16	—3.25**	—13.68	—2.71**
Banking Major	—15.13	—2.78**	—11.10	—2.12*
Length and Type of Prior Experience	—12.79	—2.22*	— 8.55	—1.58
Nonproductive Time Out of Labor Force	—12.27	—2.05*	— 8.00	—1.40
Investments in RNB Career	— 8.91	—1.49	— 4.22	—0.75
Career Motivation I	— 6.99	—1.22	— 2.53	—0.46
Sample Size	119		135	
Number of Females	54		57	
Status = NonProfessional				
Sex (1 = Female), Unadjusted	—10.14	—2.72**	2.96	0.89
Sex (1 = Female), Adjusted for:				
Service at RNB	—13.53	—4.53**	— 2.08	—0.73
Highest Educational Level	—12.94	—4.43**	— 2.13	—0.75
Banking Major	—10.59	—3.53**	— 1.69	—0.60
Banking Major in Professional Status[93]	— 9.51	—3.19**	—	—
Length and Type of Prior Experience	—10.09	—3.35**	— 1.57	—0.57
Nonproductive Time Out of Labor Force	— 9.41	—3.02**	— 1.87	—0.67
Investments in RNB Career	— 6.75	—2.15*	— 1.26	—0.44
Avg. Ann. Absence Occasions from Work	— 4.99	—1.51	— 0.69	—0.23
Career Motivation II	— 3.53	—1.03	— 0.00	—0.00
Sample Size	148		131	
Number of Females	93		95	

*Statistically significant at the 5 percent level on a one-tailed test.

**Statistically significant at the 1 percent level on a one-tailed test.

[93]It is unclear to the court just what "Banking major in Professional Status" designates, but this will turn out to be unimportant to our analyses. *See* section VII(C), *infra*. *Cf.* Testimony of Dr. Judith Stoikov at 138.

REPUBLIC NATIONAL BANK
MULTIPLE REGRESSION ANALYSIS OF SEX-RELATED CURRENT PAY DISPARITIES
SAMPLE = EMPLOYEES WITH NO MISSING DATA
DEPENDENT VARIABLE = NATURAL LOGARITHM OF SALARY AT YEAR-END, 1978

Table 1

(Part of Testimonial Exhibit 14, Defendant's Exhibit 557.)

Status/Variables Controlled Cumulatively	Stratified by Status at Hire: Black/Non-black Pay Disparity (Percent) (1)	Stratified by Status at Hire: t-Statistic (2)	Stratified by Status at Year-end, 1978: Black/Non-black Pay Disparity (Percent) (3)	Stratified by Status at Year-end, 1978: t-Statistic (4)
Status = Professional				
Race (1 = Black), Unadjusted	—22.35	—2.04*	—23.21	—2.41**
Race (1 = Black), Adjusted for:				
Service at RNB	—10.99	—1.06	—14.43	—1.55
Highest Educational Level	—11.45	—1.21	—13.34	—1.58
Banking Major	—13.49	—1.47	—13.18	—1.59
Length and Type of Prior Experience	—11.61	—1.23	—11.39	—1.40
Time Out of Labor Force	—12.04	—1.31	—12.16	—1.50
Investments in RNB Career	—11.10	—1.26	—10.93	—1.41
Career Motivation I	— 6.26	—0.72	— 6.14	—0.80
Sample Size	119		135	
Number of Blacks	10		12	

*Statistically significant at the 5 percent level on a one-tailed test.

**Statistically significant at the 1 percent level on a one-tailed test.

REPUBLIC NATIONAL BANK
MULTIPLE REGRESSION ANALYSIS OF RACE-RELATED CURRENT PAY DISPARITIES OF PROFESSIONAL EMPLOYEES
SAMPLE = EMPLOYEES WITH NO MISSING DATA
DEPENDENT VARIABLE = NATURAL LOGARITHM OF SALARY AT YEAR-END, 1978

Table 2

(Part of Testimonial Exhibit 17, Defendant's Exhibit 557.)

Status/Variables Controlled Cumulatively	Stratified by Status at Hire		Stratified by Status at Year-end, 1978	
	Black/Non-black Pay Disparity (Percent)	t-Statistic	Black/Non-black Pay Disparity (Percent)	t-Statistic
	(1)	(2)	(3)	(4)
Status = Nonprofessional				
Race (1 = Black), Unadjusted	—11.70	—3.57**	—10.71	—3.47**
Race (1 = Black), Adjusted for:				
Service at RNB	— 9.28	—3.13**	— 8.87	—3.17**
Highest Educational Level	— 9.67	—3.28**	— 9.00	—3.24**
Banking Major	— 9.46	—3.17**	— 8.21	—2.92**
Length and Type of Prior Experience	— 7.84	—2.45**	— 6.05	—2.00*
Time Out of Labor Force	— 8.15	—2.54**	— 6.11	—1.99*
Investments in RNB Career	— 7.53	—2.30*	— 6.03	—1.90*
Avg. Ann. Absence Occasions from Work	— 7.44	—2.29*	— 5.95	—1.88*
Career Motivation II	— 3.45	—1.01	— 3.44	—1.06
Sample Size	98		95	
Number of Blacks	46		45	

*Statistically significant at the 5 percent level on a one-tailed test.

**Statistically significant at the 1 percent level on a one-tailed test.

REPUBLIC NATIONAL BANK
MULTIPLE REGRESSION ANALYSIS OF RACE-RELATED CURRENT PAY DISPARITIES OF NONPROFESSIONAL EMPLOYEES

SAMPLE = FEMALE EMPLOYEES WITH NO MISSING DATA

DEPENDENT VARIABLE = NATURAL LOGARITHM OF SALARY AT YEAR-END, 1978

Table 3

(Part of Testimonial Exhibit 18, Defendant's Exhibit 557.)

Status/Variables Controlled Cumulatively	Stratified by Status at Hire		Stratified by Status at Year-end, 1978	
	Black/Non-black Pay Disparity (Percent) (1)	t-Statistic (2)	Black/Non-black Pay Disparity (Percent) (3)	t-Statistic (4)
Status = Nonprofessional				
Race (1 = Black), Unadjusted	—28.06	—4.55**	—13.58	—2.92**
Race (1 = Black), Adjusted for:				
Service at RNB	—19.32	—3.86**	—11.37	—3.08**
Highest Educational Level	—14.94	—3.12**	— 9.92	—2.87**
Banking Major	—14.39	—3.04**	— 9.98	—2.86**
Banking Major in Professional Status	—13.44	—2.84**	—	—
Length and Type of Experience	—12.50	—2.32*	— 6.28	—1.59
Investments in RNB Career	—13.20	—2.48**	— 5.90	—1.41
Avg. Ann. Absence Occasions from Work	—13.06	—2.43**	— 5.46	—1.30
Career Motivation II	— 9.56	—1.63	— 4.11	—0.92
Sample Size	50		36	
Number of Blacks	19		18	

*Statistically significant at the 5 percent level on a one-tailed test.
**Statistically significant at the 1 percent level on a one-tailed test.

REPUBLIC NATIONAL BANK
MULTIPLE REGRESSION ANALYSIS OF RACE-RELATED CURRENT PAY DISPARITIES OF NONPROFESSIONAL EMPLOYEES

SAMPLE = MALE EMPLOYEES WITH NO MISSING DATA

DEPENDENT VARIABLE = NATURAL LOGARITHM OF SALARY AT YEAR-END, 1978

Table 4

(Part of Testimonial Exhibit 19, Defendant's Exhibit 557.)

C. *Applying the Law to the Data.*

Having described at length human capital theory and ordinary least squares regressions in section VI, *supra*, and the applicable legal standard for wage discrimination in section VII(A), *supra*, we can be more succinct in applying the law to the mass of regression numbers presented on wage discrimination, as summarized in tabular form in section VII(B), *supra*.

If the Equal Pay Act requirement of "equal work" applies to sex-based Title VII wage claims, the female plaintiffs have not established a *prima facie* case of wage discrimination among females as to any year. Even the most complete of the plaintiffs' many multiple regressions designed to test for wage discrimination control for work only in terms of Hay points, and officer or other exempt status. These limited controls mean that the plaintiffs' multiple regressions would suggest non-productivity-based differentials if a female with a given portfolio of productivity characteristics at a given job "A" (with "Y" Hay points and particular officer or other exempt status) were paid differently from a male with the same portfolio of productivity characteristics at a given job "B" (with the same Hay points and particular officer or other exempt status as job "A"). If the Equal Pay Act applies, as more fully discussed in section VII(A), *supra*, it would require that a plaintiff alleging wage discrimination on account of sex and relying on multiple regressions use comparisons with males in the same or substantially equal jobs.[94]

Even were the female plaintiffs, both exempt and non-exempt, not restricted by the "equal work" requirement, and thus entitled to the full measure of protection from wage discrimination under Title VII, they would have failed

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[94]A female plaintiff can, for instance, run individual regressions for each of a sample of jobs at the place of employment. The overall pattern of coefficients of dummy variables in the set of regressions obtained might be used as the basis for determination of wage discrimination, whether or not such coefficients individually viewed were statistically significant. *See* n.74, *supra*.

to establish a *prima facie* case as to any year. This is due to the problems in the proxies for experience used by the plaintiffs, described at section VII(C)(5)(ii) below; we do not reach the issue of the validity of the Bank's other objections to the models when used for sex discrimination, except as incidentally discussed in this section.

For blacks there is no such restriction to substantially equal work when making comparisons. In the period 1973-78, at least one of the regressions offered by the plaintiffs controls for comparable jobs by way of Hay points as well as education and experience; for the period 1969-72, the plaintiffs, at best, control only for officer and exempt status.

The plaintiffs' 1969-72 models with respect to blacks must be rejected for the reason that they do not control for comparable jobs (through use of Hay points or grades as explanatory variables).[95] The multiple regressions offered by the plaintiffs for this period illustrate what two hypothetical

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[95]Requiring an explanatory variable that controls for job level when considering the issue of *wage* discrimination is not proscribed by *James* v. *Stockham Valves & Fittings Co.*, 559 F.2d 310 (5th Cir. 1977), *cert. denied*, 434 U.S. 1034 (1978). *James* was not a wage discrimination case; instead, it dealt instead with allegations of racially segregated facilities, discrimination in job assignment, promotion, training, and transfer, and discriminatory testing, education, and age requirements. *See id. at* 313. As to the job allocation claim, the court looked at, among other things: (i) the fact that the average job class (on a hierarchy of job classes) for blacks was lower than the average job class for whites and (ii) disparities in black and white employee wages and gross earnings (the average hourly earnings rate of black employees as of September 1973 being 37¢ less per hour than the average earnings of white employees). *Id.* at 321 & 326-27.

It was proper for that court to reject the earnings regression offered by defendant to explain away the 37¢ difference in "*job assignment*" by including an explanatory variable which itself was dependent on job level (that is, skill level was one of the explanatory variables, and the defendant determined that one had "skill" only if he worked in certain job classes). Otherwise, the very job placement discrimination of the employer would have been used to explain away the 37¢ indicator of job placement discrimination.

individuals, one black and one white and identical in portfolio of productivity characteristics, would earn if they had the same officer or other exempt status. The regressions for 1969-72 do not purport to determine what pay differentials would exist for such twins who work at *comparable jobs*. A white bank guard may have the same nonofficer and nonexempt status as a black maintenance man; though it may be that they have the same portfolio of productivity characteristics, and thus perhaps should be working at the same job level, one cannot properly infer *wage* discrimination (in contradistinction to initial placement or promotion discrimination) from the fact that they are being paid differently.

On the other hand, the plaintiffs offer regressions for the period 1973-78 which control for Hay points (and as to these regressions, generally control for officer or other exempt status as well through the use of dummy variables). The choice of the explanatory variables and the form of the model were fully supported by the human capital theory, as testified to by Drs. Madden and Blau. And, as seen earlier, even the most complete of the plaintiffs' regressions indicates a large and statistically significant pay differential as a result of being black; the coefficients of the dummy variables for race are large, negative, and statistically significant. *See* D. Baldus & J. Cole, *supra* n.55, § 9.41, at 317-18 (distinction between "practical" and "statistical" significance). *Cf. Rowe* v. *General Motors Corp.*, *supra* n.59, at 354 ("Discriminations come in all sizes and all such discriminations are prohibited by the Act."). We find that a *prima facie* case of wage discrimination is established as to blacks, both exempt and nonexempt, for 1973-78, discussing some of the specifics of this finding in the context of our analysis of the Bank's attempted rebuttal. The Bank attempts to rebut this finding, not by asserting that there were market reasons which account for differential payment of those in

comparable jobs,[96] but by a series of arguments which challenge the plaintiffs' finding of differential payment of blacks, all of which fail. (*See* arguments (1) - (9), *infra.*)

In determining whether a *prima facie* case is established, or if established, rebutted, we keep in mind the fact that "no model in the social sciences ever meets all the requirements for a perfect regression analysis," and the crudity of modeling permitted plaintiffs by law on the *prima facie* case. *See* D. Baldus & J. Cole, *supra* n.55, § 8.2, at 266; section IX(C), *infra. Cf. Johnson* v. *Uncle Ben's, Inc.*, No. 78-1437, slip op. at 423 & 425 (5th Cir. Oct. 17, 1980). To challenge a model successfully, the defendant must do more than point to possible sources of error which would bias the modeling results against him. Several conditions must hold for defects to cause the modeling results to lose probative effect.

First, unless the error is an egregious one, it must be systematic. For instance, if the data is imperfect in a random way, accuracy of the signal of whether or not group status is being taken into account by the employer will not be affected.[97]

Second, one must ask if there is actually — and not merely theoretically — a bias. For instance, an employer charged with sex discrimination who argues that omission from the model of the ability to supervise others biases the econometric results against it because men tend to be better supervisors must justify the proposition that the men *at its plant* are likely to be better supervisors. Even were men better supervisors in society generally, no bias in econometric results occurs if the supervisory ability of the men at its plant is the same as the supervisory ability of the women at the plant.

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[96]Isolated instances of such market reasons, such as the fact testified to by Thomas Barksdale that petroleum engineers, because of market conditions, were paid more than those with similar Hay points, do not rise to the level of a general argument that such abnormal market conditions systematically account for differential payment of blacks in comparable jobs.

[97]Of course, there may be some rare instances where the data base is so inaccurate that even in the absence of a showing of systematic bias, any models based thereof become non-probative.

A defendant could of course seek to show through direct, accurate testing of the employees at its plant that there is indeed a difference in supervisory ability cutting across race or sex lines. Alternately, for the purposes of the econometric analysis — and solely for such purpose[98] — the defendant

[98]While the employer may wish to use group characteristics in making social science studies of past behavior, it may not use group characteristics, real or imagined, as a factor in employment decisions. Current law has forbidden, under Title VII, an employer's prediction of what an individual is like on the basis of his group status, even if the prediction is well founded statistically. *See Los Angeles Department of Water & Power* v. *Manhart*, 435 U.S. 702 (1978). We see no reason why a court should similarly be prevented from statistical ascription to an actual *group* of individuals (that is, the employees at Republic). *Los Angeles* v. *Manhart, supra*, determined that although as a class, women live longer than men, the employer violated Title VII in requiring its female employees to make larger contributions to its pension fund than its male employees. The reasoning unambiguously rejects ascriptions of group characteristics to affected individuals:

> This does not . . . involve a fictional difference between men and women. It involves a generalization that the parties accept as unquestionably true: Women, as a class, do live longer than men. The Department treated its women employees differently from its men employees because the two classs are in fact different. It is equally true, however, that all individuals in the respective classes do not share the characteristics that differentiates the average class representatives. Many women do not live as long as the average man and many men outlive the average woman. The question, therefore, is whether the existence or nonexistence of "discrimination" is to be determined by comparison of class characteristics or individual characteristics. A "stereotyped" answer to that question may not be the same as the answer that the language and purpose of the statute command.
>
> The statute makes it unlawful "to discriminate against any *individual* with respect to his compensation, terms, conditions, or privileges of employment, because of such *individual's* race, color, religion, sex, or national origin." 42 U.S.C. § 2000e-2(a)(1) (emphasis added). The statute's focus on the individual is unambiguous. It precludes treatment of individuals as simply components of a racial, religious, sexual, or national class.
>
> . . .
>
> [T]here is no assurance that any individual woman working for the Department will actually fit the generalization on which the Department's policy is based.
>
> . . .
>
> Even if the statutory language were less clear, the basic policy of the statute requires that we focus on fairness to individuals rather than fairness to classes.

435 U.S. at 707-09.

may seek to infer the characteristics of the groups at its plant from the characteristics of various groups in society in general. For such inference to be valid, the defendant must start by offering clear, empirically-based evidence on the asserted differences among groups. Mere "stereotyped" impressions about group characteristics are not enough. *Cf. Los Angeles Department of Water & Power* v. *Manhart*, *supra* n.98, at 707. After showing that there is indeed a difference among groups as to the characteristics at issue, the defendant must show that the societal patterns are a reliable guide to the actual employee characteristics at his plant: unreliability may stem from two sources. First, his number of employees may be small, and second, his employees may not be reflective of societal patterns as to that characteristic. For instance, if the employer had only two employees, one male and one female, it would be foolhardy for the employer to infer from general societal characteristics of men and women the characteristics of his one male and one female, especially as to less pronounced tendencies in society. Moreover, even were he to have not two, but two thousand, employees, societal patterns as to the characteristic at issue may not be present at the employer's plant: the "pools" may be different. For instance, while one group may have greater spatial coordination than another group in society overall, it is not necessarily true that among the machinists at the employer's plant such group differences are present to the same extent, or present at all.

Finally, if the employer shows that there is a systematic bias, and that with the actual employees at the employer's plant such a bias is present (either shown directly or through the two-step procedure of inference from general societal patterns discussed in the preceding paragraph), he must show that the model is "sensitive" to the bias, and that the sensitivity of the model together with extent of the bias interest such that the modeling results as to the presence or absence of discrimination are likely to be unreliable. In essence, this final stage is the "how much" stage, wherein the defendant must show that the net effect of the

bias on the model's results affect the very validity of the model's finding of the presence or absence of discrimination (as distinguished from the extent of discrimination indicated by the model).

In the following discussion, we focus on blacks; we discuss women in section VII(C)(5)(ii), *infra*, showing that because of the inaccuracy of proxies used by plaintiffs for women, even assuming no Equal Pay Act barrier, no *prima facie* case of wage discrimination is established.[99]

(1) "Defendant's compensation regression is a superior model . . . ." (Defendant's Post-Trial Brief at 465).

The Bank argues that its model is superior to the plaintiffs' models in "completeness, accuracy, and reliability," and that the court must accept the "conclusion" from the Bank's model that sex and race were not statistically significant influences on pay during the period covered by the suit. Quite aside from the fact that defendant's wage regression analysis covered only one year (1978), and, without reaching the issue of whether there are other problems associated with her model, we find Dr. Stoikov's model not probative because it does not control at all for work performed. It cannot rebut the plaintiffs' regressions. There is no explanatory variable included in Dr. Stoikov's model for the job the individual is performing (such as would be done in crude fashion through the use of Hay points); nor does Dr. Stoikov run separate regressions for each of a series of "equal" or "substantially equal" jobs. Comparison of individuals in the same jobs occurs only in the sense that professionals are

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[99]In here proceeding to an analysis of wage disparities *after* controlling for productivity, we do not mean to ignore *Fisher* v. *Procter & Gamble Mfg. Co.*, 613 F.2d 527, 544 (5th Cir. 1980). *Fisher* was not a compensation case, and we decline to extend its embrace of "raw" figures here because of the dangers of running afoul of note 13 of *Hazelwood School District* v. *United States*, 433 U.S. 299, 308 (1977). Moreover, the sort of raw wage differentials here involved do not even come close to the ratio of percentage of blacks in skilled positions to their percentage in the work force in *Fisher*.

compared with other professionals, and nonprofessionals with other nonprofessionals. In the absence of more finely-tuned controls for work, the regressions tell us too little about whether wage discrimination is occurring. Thus Dr. Stoikov's pay model fails to rebut plaintiffs' *prima facie* case for reasons analogous to the reason for which the plaintiffs' models' fail to establish a *prima facie* case for blacks for 1969-72.

(2) "Plaintiffs have provided no proof of compensation discrimination within the subclasses ordered by the Court." (Defendant's Post-Trial Brief at 413).

This argument can be divided into three parts: (i) the Bank urges that because the court split the work force into exempt and nonexempt subclasses, the plaintiffs should have run their regressions separately for exempts and nonexempts. (ii) The Bank complains that "[p]laintiffs chose to determine that a separate subclass of nonblack minorities existed, and withdrew all members of this subclass from the pool of nonclass members with whom class members were statistically compared, and even ran a separate analysis with this subclass." Defendant's Post-Trial Brief at 415. (iii) The Bank complains that "[p]laintiffs' regressions are not consistent with the certification in terms of the arbitrary exclusion of black males from any male/female comparisons and the exclusion of white females from any black/white comparisons." *Id.* at 416.

Argument (i) is an argument about the legal, not the statistical, argument on pooling of exempts and nonexempts.[100] The statistical argument on pooling is raised elsewhere (and we shall not here deal with it). *See* section VII (C) (4). The argument must be rejected even assuming *arguendo* (i) that it is proper to run separate regressions for exempts and nonexempts and (ii) that it is legally

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[100]Assuming *arguendo* that the use of the dummy variables for officer or other exempt status does not take care of the "2-pay structure problem."

necessary for plaintiffs to provide separate evidence for exempt and nonexempt discrimination. Though for statistical reasons plaintiffs believed it unwise to do so, they nevertheless ran such regressions, and statistically significant negative pay differentials were still found for each year from 1973 to 1978 for black nonexempts, and for 1973 and 1975 for black exempts. Negative, though statistically insignificant (at the 5% level) pay differentials for black nonexempts were found for the other years (1974, 1976, 1977, and 1978).

Separating nonexempts from exempts in this fashion causes a downward bias in any finding of pay differential for nonexempts. *See* Testimony of Dr. Janice Madden at 138-39; Testimony of Dr. Francine Blau at 44. That the findings indicate discrimination for nonexempts, even after separate regressions are run, is all the more impressive.

For black exempts, plaintiffs concede that to run such a separate regression equation would bias upward any finding of pay differential. *See* Testimony of Dr. Janice Madden at 139.[101] However, there is no indication that the upward bias is any more than *de minimis;* the Bank provides no quantitative estimate of the error. Despite the small sample[102] of

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[101]Dr. Stoikov appears to have testified to the converse: with truncation bias, she believes there would be overestimation of discrimination in the *nonprofessional* regression and underestimation in the *professional* regression. *See* Testimony of Dr. Stoikov at 151-52. If this converse set of propositions is true, the above sorts of arguments as to black nonexempts and black exempts could be switched as well.

[102]Numbers of black exempts at the Bank appear to be as follows:

1973:	5
1974:	14
1975:	19
1976:	16
1977:	21
1978:	24

Calculated from P. England, *Employment of Women and Minorities at Republic National Bank: A Comparison with Availability Estimates* (1979) (Table 6) (Plaintiffs' Exhibit 507F).

black exempts, there were statistically significant negative pay differentials for blacks in 1973 and 1975, and negative pay differentials for each of the other years. In the absence of any sort of estimate of how much this bias affects results, and because the results of models pooling exempts and non-exempts are consistent with the exempt-only results, a *prima facie* case is established as to exempts. *See* section VII(C), *infra* (introduction) (re challenging *prima facie* case).

Arguments (ii) and (iii) are directed toward the concept of comparing the wages of (white) females (or (male) blacks) against those of white males. White males are presumptively not discriminated against, and are a proper yardstick for determining if there had been discrimination.[103] If "other minorities," or blacks or females are included in the yardstick, any discrimination against any of these groups will itself affect the yardstick said to measure discrimination. That arguments (ii) and (iii) are being offered by the Bank is somewhat surprising for another reason: Dr. Stoikov herself, in one of her promotion analyses for blacks, compared blacks not with whites, both male and female, but with white males alone. The reason for this, Dr. Stoikov asserted, was that the preferential treatment of white females was causing an indication of discrimination against blacks where there was none. *See* Testimony of Dr. Judith Stoikov at 175-177.[104] Thus Dr. Stoikov herself acknowledges

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[103]Comparing white females with white males is one permissible way of detecting (pure) sex discrimination; comparing black males with white males is one permissible way of detecting (pure) race discrimination. *Cf.* Plaintiffs' Exhibit 504, at 4 ("controlling for race, women earn 37.50 percent less than men with similar levels of education and experience"; "[w]ithin each sex group, blacks earn 16.77 percent less than whites with comparable education and experience.") & 8 ("The percentage salary differentials between white males and black males, white females, and black females are shown in Table 5 [Plaintiffs' Exhibit 504-E] for all active employees.").

[104]For instance, Dr. Stoikov testified:

> And so what I then did was to rerun the regression again eliminating white females from the regression and then estimating what the effect of race is on the probability of being hired as a professional.

the possible tainting of the discrimination yardstick if the comparison base includes members of a group who may be being treated differently.

(3) "Plaintiffs' model holds the Bank responsible for discrimination effected by sources outside the Bank." (Defendant's Post-Trial Brief at 420) *and* "The Plaintiffs' model is not fully specified: omitted variables bias the results in favor of Plaintiffs." (Defendant's Post-Trial Brief at 424).

The Bank here argues that certain explanatory variables are omitted from the plaintiffs' equations, and since these omitted variables are race- and sex-correlative (such that white males are more highly possessed of these characteristics), the omission biases the results against the Bank. Thus they assert:

> [Plaintiffs' regression model] attributes to the Bank discrimination which was effected by persons other than the Bank or by society at large. Current economic literature shows that females and blacks bring to their employment lower career ambitions, values, and motivations than do white males. Plaintiffs' model attributes all the race and sex differences in these factors to discrimination on the part of the Bank.

These results are presented in Testimonial Exhibit 24. As expected the regression coefficient when all blacks are compared with white males is not statistically significant at the 5 percent level, regression coefficient is minus 0.0165 and T statistic is minus 0.43.

I was led to the conclusion from this analysis that the estimate that I was observing in Exhibit 22 is due to a comparison of 2 protected groups, blacks and white females, wherein in fact 1 of the protected groups, white females, had been affirmatively placed into the professional pay structure where the other one had been placed without prejudice into the professional pay structure. And that the comparison of the — of the blacks with white females was producing the appearance of discrimination when in fact it was in essence an indication of affirmative action towards white females. I hope that's clear.

Testimony of Dr. Judith Stoikov at 177.

Defendant's Post-Trial Brief at 420. The Bank continues:

> [E]stimates derived from a multiple regression analysis are invalid or biased if the model is not fully specified. The Plaintiffs' model here is not fully specified, as it omits key variables of potential productivity. The omission of these key variables heavily biases Plaintiffs' estimates of compensation discrimination against the Bank and renders the model, as specified, an unreliable measure of actual discrimination.

Defendant's Post-Trial Brief at 424-5. It goes on to assert that "[t]he human capital literature is replete with studies showing differences in the productivity factors blacks and females bring to their work, outside the influence from their employer, compared with whites and males." *Id.* at 425-26. The Bank proceeds to list some of these asserted race- or sex-correlative potential productivity factors, "as reported in the human capital literature," including such categories of factors as "career motivation" and:

> (vi) *Miscellaneous productivity influences:* analytical ability, creativity, supervisory capability, research ingenuity; physical strength; preferences and importance of physical characteristics of the work-place; childhood environmental influences such as educational level of parents; ability and intelligence as measured by performance on intelligence tests; and maturity.

Id. at 431-32 (footnotes omitted).

These arguments fail for a number of reasons in the face of plaintiffs' regressions which simultaneously control, in a rough way, for education, experience, and job characteristics. First, stripped of the jargon of race- or sex-correlativeness, when the Bank is discussing, for instance, "miscellaneous productivity influences", the Bank is asserting that due to influences extraneous to the Bank, females and blacks have less analytical ability, creativity, research ingenuity, physical strength, and so forth than white males. This court cannot

accept as fact, on the basis few social science articles, assertions so close in nature to expressions of bias, which assertions are so clearly susceptible to challenge. Any asserted group differences in characteristics should have been the subject of fuller proof and more focused adversary contest at trial.

Moreover, there is little evidence in the record that the *overall* effect of omission of various productivity-affecting factors is such as would bias the results against the Bank. While there was some evidence that in the general population, women and blacks may possess lower amounts of certain omitted productivity characteristics (and that suggestion is reasonable), the move from this "proof" to a blanket assertion that the overall effect of omitted variables is to bias results against the Bank was not documented in a careful step-by-step analysis such as to allow the court to make such a multi-fact-dependent assumption. *Compare* Testimony of Dr. Judith Stoikov at 440 *with* Testimony of Dr. Francine Blau at 83.

In addition, Republic has relied heavily on the assumption that its black and female employees relative to its white male employees reflect the same patterns of distribution of omitted characteristics as blacks and females relative to white males in society in general. In terms of the analytical construct we discussed just prior to our analysis of the Bank's objections to the plaintiffs' multiple regressions, the Bank has not shown that the number of employees is sufficiently large that societal patterns provide a reliable basis for inferring what the Bank's patterns are like, nor has the Bank shown that its selection procedures and criteria are such as to lead its pool of employees to mirror society as to the distribution patterns of the omitted characteristics across sex and race.

The Bank did attempt to look directly at the characteristics of its employees. The only direct[105] evidence on actual employee qualifications appears to be that provided in Dr. Stoikov's Testimonial Exhibits 15 and 16. *See* Tables 5 and 6. However, those exhibits look only at some productivity characteristics, and only at one point in time.

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[105]Concededly, there is some *indirect* evidence of the actual patterns of employee qualifications, albeit only for small samples of the Bank's employees in one year (1978), and only as to those characteristics gauged in the Bank's pay regression.

For instance, none of the plaintiffs' pay regressions contained a variable (or set of variables) for bank-related major, which assertedly causes "omitted variable" bias. In the Bank's pay regression, after controlling for service at Republic and highest educational level, the Bank added variables for banking major, and the professional male/professional female pay disparity dropped from -17.16% to -15.13% (using stratification by status at hire). *See* Testimonial Exhibit 14, Defendant's Exhibit 557. This reduction in the disparity might arguably suggest that females at the Bank are less likely to possess a banking major than males.

However, this sort of indirect evidence is not persuasive in this case, through the interaction of four reasons. First, the samples were fairly small in size — there were only 54 females in the professional male/professional female study, 98 females in the nonprofessional male/nonprofessional female analysis, 10 blacks in the professional black/professional white comparison, 46 black females in the black female nonprofessional/white female nonprofessional comparison, and 19 black males in the black male nonprofessional/white male nonprofessional regression. *See* Testimonial Exhibits 14, 17-19 (Defendant's Exhibit 557).

Second, many of the changes in pay disparity due to the addition of any one set of explanatory variables were either small in magnitude or, on occasion, positive in sign: exclusion of any one set of explanatory variables may not be a serious problem. Indeed, to include these sorts of explanatory variables may cause multicollinearity problems. (One explanatory variable which does seem to consistently decrease disparity by more than a small amount is the set of variables designed to measure career motivation; this obviously may be tainted by any employee perception of Bank discrimination.) From these small magnitudes, it is difficult to infer that the pay differentials in the plaintiffs' models would be reduced to zero if there were no omitted variable bias, especially considering the possibility that other omitted variables, not included

REPUBLIC NATIONAL BANK
COMPARISON OF MEAN EMPLOYEE CHARACTERISTICS OF MALES, FEMALES, NONBLACKS AND BLACKS HIRED AS PROFESSIONALS

(Year-End 1978)

Employee Characteristics	Males (1)	Females (2)	Nonblacks (3)	Blacks (4)
Length of RNB Service (Months, Natural Logarithm)	4.3879	3.5179	4.0620	3.2419
Some College or Associates Degree	0.1692	0.2222	0.2018	0.1000
Bachelors Degree	0.4154	0.4074	0.3853	0.7000
Bachelors Degree or Higher with Banking Major	0.7077	0.5741	0.6239	0.9000
Masters Degree or Higher	0.2923	0.2593	0.2844	0.2000
Length and Type of Prior Experience (in Months):				
Total Non-RNB Work Experience	83.8462	62.8333	74.9128	67.7500
Bank Officer or Professional	22.6154	12.6574	19.5826	1.9000
Non-Bank Officer or Professional	22.8615	16.7593	20.5459	15.1500
Technician	13.8154	4.5370	9.7982	7.5000
Total Clerical	6.0000	23.4444	14.2202	10.6000
Months Out of Labor Force	1.3692	21.6852	11.5229	0.4000
Offsite Training or AIB Certificate	0.6154	0.2778	0.4771	0.3000
Frequency of Overtime Worked	4.1692	3.6852	3.9633	3.8000
Career Importance:				
Extremely Important	0.6000	0.5370	0.5872	0.4000
Very Important	0.2154	0.3333	0.2661	0.3000
Unimportant	0.0308	0.0185	0.0275	0.0000
Willing to Accept Promotion Under Specified Conditions	0.2923	0.1667	0.2385	0.2000
Sample Size	65	54	109	10

TABLE 5

Testimonial Exhibits and Appendices of Judith Stoikov, Testimonial Exhibit 15 (Defendant's Exhibit 557).

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in the Bank's pay regression, may bias results in favor of a finding of non-disparity.

Third, this indirect evidence relates only to 1978. We hesitate to extrapolate indirect evidence of complex patterns of employee characteristics, especially when those patterns seem to be relatively unpronounced.

Fourth, this indirect evidence does not show the extent to which *plaintiffs'* modeling results are affected by omitted variables bias.

REPUBLIC NATIONAL BANK COMPARISON OF MEAN EMPLOYEE CHARACTERISTICS OF MALES, FEMALES, NONBLACKS AND BLACKS HIRED AS NONPROFESSIONALS

(Year-End 1978)

Employee Characteristics	Males	Females	Females		Males	
			Nonblacks	Black	Nonblack	Black
	(1)	(2)	(3)	(4)	(5)	(6)
Length of RNB Service (Months, Natural Logarithm)	3.5010	3.7957	3.9485	3.6231	3.7633	3.0729
Less than High School	0.0200	0.0102	0.0192	0.0	0.0000	0.0526
High School Graduate	0.4800	0.6020	0.6346	0.5652	0.4516	0.5263
Bachelors Degree or More with Banking Major	0.1600	0.0204	0.0385	0.0	0.2258	0.0526
Banking Major with Professional Status	0.1200	0.0	0.0	0.0	0.1935	0.0000
Length of Type of Prior Experience (in Months):						
Total Non-RNB Work Experience	67.3800	49.1429	51.8365	46.0978	84.5806	39.3158
Bank Officer or Professional	0.4800	0.0	0.0	0.0	0.7742	0.0
Non-Bank Officer or Professional	13.6600	2.3010	4.3365	0.0	21.4516	0.9474
Technician	3.5000	2.9490	4.3654	1.3478	2.6129	4.9474
Clerical Supervisor	2.6800	4.2908	4.5673	3.9783	3.8710	0.7368
Secretarial	0.0	9.9898	15.8269	3.3913	0.0	0.0
Other Clerical	25.9200	19.9388	18.2404	21.8587	33.3871	13.7368
Months Out of Labor Force	7.2800	37.0918	44.6538	28.5435	4.5484	11.7368
Offsite Training or AIB Certificate	0.1800	0.0612	0.1154	0.0	0.2581	0.0526
Frequency of Overtime Worked	3.5600	3.0306	2.8654	3.2174	3.6774	3.3684
Average Occasions of Absence from Work	2.0950	3.8946	3.8638	3.9293	2.1559	1.9956
Willing to Accept Promotion if:						
Additional Pressure	0.5000	0.4490	0.4615	0.4348	0.6129	0.3158
Additional Travel	0.4800	0.2041	0.1731	0.2391	0.4839	0.4737
Sample size	50	98	52	46	31	19

TABLE 6

Testimonial Exhibits and Appendices of Judith Stoikov, Testimonial Exhibit 16 (Defendant's Exhibit 557).

More fundamentally, these two exhibits do not necessarily indicate that the fact that males at Republic possess more of the various characteristics listed than females or blacks mean that omitting such variables from the regression equation would result in omission biases detrimental to the Bank. Because males are generally in positions at the Bank higher than blacks and females, to compare the mean male with the mean female or mean black as to various productivity characteristics is oniy a self-fulfilling exercise. We leave an illustrative proof of this fact to the margin.[106]

The third reason the Bank's argument fails is that only certain job criteria are "so manifestly job-related" that the employer need not make an evidentiary showing of business necessity. *See Smith* v. *Olin Chemical Corp.*, 555 F.2d 1283, 1287 (5th Cir. 1977). "As the cases have developed, once discriminatory effect is shown, the employer must carry a heavy burden of proof to show business 'necessity' for the employment practice." *Id.* at 1286. The Bank has made an effort to show the business necessity of only some of the many productivity variables it asserts are omitted.

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[106]Suppose there were 51 high-level executives, 50 males and 1 female, each with identical productivity characteristics (only some of which are included in the regression equation); they score high on each productivity characteristic.

Suppose there were 51 lower-level executives, 50 females and 1 male, each with identical productivity characteristics (only some of which are included in the regression equation); they score low on each productivity characteristic.

If one does the regression controlling for job level, it can be assumed that the coefficient of the dummy variable will likely not suffer from omitted variables bias; after all, the higher-level male is exactly equivalent to the higher level female, and so if any difference in pay exists, it could not be attributed to productivity differences.

Yet, if one were to draw up tables corresponding to Tables 1 and 2, they would show the mean male having higher productivity characteristics than the mean female.

The fourth reason is that including all relevant explanatory variables increases the dangers of overinclusion, including the possibility of multicollinearity. *See, e.g.*, Testimony of Dr. Francine Blau at 16; section VI(D)(3), *supra*. As discussed earlier, if multicollinearity is present, the probability is increased that no statistically significant differential will be found despite actual differences in treatment. *See* D. Baldus & J. Cole, *supra* n.55, at 275. "The concerns about multicollinearity and over-fitting both argue generally for restraint in selecting variables to be included in a regression." *Id.*

The fifth reason is that a plaintiff is not required to produce a perfectly designed model in order to make out a *prima facie* case. *See, e.g.*, Finkelstein, *The Judicial Reception of Multiple Regression Studies in Race and Sex Discrimination Cases*, 80 Colum. L. Rev. 737, 744-45 (1980). *Cf.* D. Baldus & J. Cole, *supra*, at 275-76. Plaintiffs offer, and we rely on as establishing the *prima facie* case, a model which controls, in a rough way, for experience, education, and job characteristics. By way of analogy, even though motivation may indeed have a bearing on who gets hired, to establish a *prima facie* hiring case, there is no need to look at the "highly motivated" segment of the relevant geographic/skill market for availability comparisons.

Finally, the Bank does not provide any quantitative estimate as to how much the omitted variables bias would affect the plaintiffs' modeling results. For instance, if the model showed a 25% pay differential due to group status, even if 5% of that were attributable to omissions bias, there would still be 20% worth of discriminatory behavior.

(4) "The pooling of exempt and nonexempt employees in the same pay regression is a specification error which biases Plaintiffs' estimates against the Defendant." (Defendant's Post-Trial Brief at 438).

We have already discussed this problem at (2). *See also* n.90, *supra*. Here the Bank's experts' statistical reasons for

separating exempts from nonexempts are offered. The plaintiffs' experts contended that such separation may cause "truncation bias", and that Dr. Stoikov's assertion that truncation problems from separation can be avoided is subject to challenge. Because the controversy here appears to center on an issue on the frontier of econometrics, and there seems, at least to a court unschooled in the intricacies of econometrics, to be genuine conflict between the experts as to the proper approach, we do not decide the issue. *See, e.g.*, Heckman, *Sample Selection Bias as a Specification Error*, 47 Econometrica 153 (1979); Cain, *The Challenge of Segmented Labor Market Theories to Orthodox Theory: A Survey*, 14 J. Econ. Lit. 1215, 1246-47 (1976). More to the point, this court is not institutionally competent to resolve such a mathematical dispute.

Even assuming *arguendo* that separate regressions are called for, the Bank's challenge fails. The plaintiffs have indeed performed separate regressions, although the plaintiffs state that their separate regressions suffer from truncation bias as a result. While such problems would indeed detract from the reliability of the plaintiffs' separate regressions, the results from such separate analyses are consistent with what one would expect from the results of the pooled analyses. Moreover, there is no indication of the extent to which error of non-separation, or separation using the plaintiffs' methodology, would actually affect the discrimination indicated by the plaintiffs' models. *See* section VII(C), *supra* (introduction).

(5) The productivity factors in Plaintiffs' model are improperly specified" (Defendant's Post-Trial Brief at 445).

(i) "Measurement of Education Years" (Defendant's Post-Trial Brief at 445).

The Bank asserts that some of the plaintiffs' proxies for education are subject to two errors, both of which overstate the educational attainment of women relative to that of men. Whatever the validity of this criticism, it does not relate to blacks.

(ii) "Age as a Measure of Work Experience" (Defendant's Post-Trial Brief at 447).

The Bank asserts that "[p]laintiffs' experts, in both of their original reports, used age as a measure of prior experience or total work experience (PX 501, 504). Plaintiffs' experts were well aware that age is a biased measure inflating the actual work experiences of women and blacks." Defendant's Post-Trial Brief at 447.

There was little evidence, based even on general societal patterns, that the age proxy is detrimental to the Bank in the case of blacks. The Bank implicitly concedes as much, stating as a footnote, after discussing various social science studies not specific to the employees at the Bank:

> In fact, evidence adduced at the trial positively demonstrates that age is a bad and inflated measure for the work experience of women at the Bank (PX 557, TE 21).

Defendant's Post-Trial Brief at 448 n.183. Moreover, for the Bank to merely point out the general inaccuracy of such a proxy in the plaintiffs' *prima facie* model is not enough; it would have to show how much the results may be affected. Finally, keeping in mind our earlier discussion of stereotyping, no effort appears to have been made to show whether the age proxy is bad for the black employees actually at the Bank.

On the other hand, for women, there *is* sufficient evidence of both the existence of such actual work patterns among Bank employees as to render the age proxy being bad, and the severe impact on the plaintiffs' own regression results due to such an inaccurate proxy.

First, Dr. Stoikov prepared an analysis illustrating how age could be a bad proxy for experience for females at the Bank. *See* Table 7. From this analysis, she showed, using 1978 samples, that while the proxies used in the initial report indicate that females have 93.81% or 89.99%

(depending on the measure used) as much experience as males, the actual work experience percentage was only 70.7%. Dr. Stoikov testified:

> And so what happens in their [plaintiffs'] measures of experience and their proxies for experience, is they're severely undermeasuring the prior experience of men relative to that of women. And that manifests itself in a dampening [sic] of the sex correlation between experience and pay so that if prior experience is a legitimate determinative [sic] of pay they're underestimating it and hence they're overestimating the discrimination coefficient because of that.

Testimony of Judith Stoikov at 111. Dr. Stoikov also determined that the average male was out of the labor force and not in school for about four months whereas the average female was out of the labor force and not in school for 30 months. This is presumably measured from the time the individuals first enter the labor force or leave school. *See* Table 7; Testimony of Judith Stoikov at 112.

While Dr. Stoikov's analysis was performed only on a 1978 sample, the plaintiffs do not seriously challenge the notion that to use age as proxy for experience for women would cause serious errors if applied generally to societal figures. For instance, Dr. Blau testified:

> Q. Okay. You've never heard of any studies which show comparisons of experience, actual experience for blacks and for sex.
>
> A. Compared to the actual experience against age, I think Mary Corcoran may have had some comparison of women versus men, may have reported the means in some of her studies. You know there is no question there is a disparity.
>
> Q. Is it a significant or substantial disparity?
>
> A. Yes, although I couldn't give a figure at present.

Testimony of Dr. Francine Blau at 199. Moreover, while plaintiffs do not concede that age[107] would be a poor proxy for experieince for women at the Bank, they offer no evidence contradicting Dr. Stoikov's analysis for 1978 or offering any reason why its applicability should be limited to 1978. *See, e.g.*, Testimony of Dr. Francine Blau at 19-20.

It is difficult to determine from the regressions the effect these proxies for experience would have on the dummy coefficients and their statistical significance. Intuitively, we surmise that, because the only explanatory variables used by the plaintiffs (other than controls for job level) are those based on education, general labor market experience (as proxied by age and variations of age), and (in some regressions) "bank experience", a serious error in the proxies for general experience would greatly bias the results.

COMPARISON OF AGE AND VARIOUS MEASURES OF WORK EXPERIENCE FOR MALES AND FEMALES

	Total	Male	Female	Female as Percent of Male
				(Percent)
	(1)	(2)	(3)	(4)
1. Age in 1978 (in years) (Dr. Blau's measure)	33.840	35.078	32.908	93.81
2. Age in 1978 Minus Assumed Age at Completion of Education				
(in months)	165.090	175.096	157.568	
(in years) (Dr. Madden's measure)	13.758	14.591	13.131	89.99
3. Months of Total Work Experience at Hire (NERA's measure)	62.802	75.400	53.333	70.73
4. Years Out of School at Hire	7.567	7.278	7.784	106.95
5. Months Not Working and Not in School at Time of Hire	18.881	3.939	30.111	764.43
Sample Size	268	115	153	

TABLE 7

Testimonial Exhibits and Appendices of Judith Stoikov, Testimonial Exhibit 21 (Defendant's Exhibit 557).

[107] When we discuss the use of age as proxy, we mean to include any proxies for general experience that do not use actual general experience.

Given the seriousness of this proxy error, the plaintiffs should have used actual measures of general experience, or the plaintiffs should have met the burden of showing that such a serious proxy error did not sufficiently affect their assertions of discrimination. Plaintiffs did neither. They offered no regression equation which controlled for job level by way of Hay points or grades and in which actual general labor market experience (as distinguished from bank experience) was used. And the plaintiffs offered no legally cognizable[108] regression wherein a "sex experience" interaction term was added to an equation which controlled for Hay points or grade used.

Nor did the plaintiffs provide convincing evidence of the unimportance of the bad proxy on the dummy coefficients. If anything, the regressions which the plaintiffs offered seemed to show the opposite. Below, in the first row we list the dummy coefficients for females reported in column 2 of Tables 1-10 of Plaintiffs' Exhibit 1308. The second row consists of coefficients from column 3 of Tables 1 through 10 of Plaintiffs' Exhibit 1308.

1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
-.3892	-.3601	-.3773	-.3739	-.3755	-.3633	-.3397	-.3009	-.2907	-.2900
-.1453	-.1432	-.1677	-.1521	-.2981	-.2935	-.2518	-.2264	-.2125	-.2030

Table 4

The first row consists of coefficients of female dummy variables, controlling for education [in the way detailed in section VII(B), *supra*] and experience, proxied by age or variants thereof [in the way detailed in section VII(B), *supra*], but not controlling for job level. The most important difference between this first regression and the regression of the second row is that in the second regression is now included a variable which in effect culls out the effect of

[108] *See* n.117, *infra* (re "mining" for regression results in the mass of numbers offered, and its application to this case).

overestimation of experience due to the use of age as proxy.[109] As can be seen from Table 4, the difference between coefficients when age is used as a proxy and when actual work experience measures are used can be striking. (Detracting somewhat from the dramatic differences in coefficients is the fact that the regressions generating such estimates seriously *overcompensated* for errors in the use of age as proxy for experience. It was "assumed that all variance in salary which would be attributed *either* to sex or to our constructed experience variable is attributed entirely to experience." Plaintiffs' Exhibit 1308, at 3. *See also id.* at 4.)

(6) "The model is not an appropriate measure of equal pay" (Defendant's Post-Trial Brief at 451).

Defendants offer a variety of objections under this heading:

> (i) "The measure of equal work used in these reports is totally inconsistent with measures of equal work required by the courts, and for that reason alone must be rejected as a plausible inference of unequal pay." (Defendant's Post-Trial Brief at 451).
>
> (ii) "There are three additional specification errors in the Plaintiffs' compensation regressions which include Hay points among the explanatory variables. Each of these specification errors has a consequence akin to that of omitting a relevant explanatory variable; namely, estimated coefficients are biased and inconsistent.
>
> . . .
>
> (1) Hay points are not homogeneous units across exempt and nonexempt jobs at the Bank.
>
> . . .

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[109] *See* the section VII(B) tables for a description of the sex-experience interaction terms used for the periods 1969-72 and 1973-78.

(2) Hay points and grades are inaccurately measured by Dr. Blau and Dr. Madden for nonexempt employees. Their most egregious error is to assign an average Hay point value to all employees of the same grade.

. . .

(3) There is a qualitative change in the relationship between Hay points and pay at at [sic] least three levels of pay at the Bank. . . . Failing to recognize that there are shifts in the pay/Hay point relationship leads to a biased coefficient for Hay points." (Defendant's Post-Trial Brief at 456-57).

(iii) "[T]here are two sources of heteroskedastic disturbances in the Blau/Madden measures of Hay points. The presence of heteroskedasticity means that the standard tests of significance do not apply, and calculated standard errors and confidence intervals are wrong." (Defendant's Post-Trial Brief at 457-58).

Argument (i) is based on the assumption that the equal work standard of the Equal Pay Act applies in Title VII cases to blacks as well as to females. As discussed in section VII(A), *supra*, we disagree.

Argument (ii)(1) can be answered in three ways: First, the Bank does not explain why this argument cannot be answered by the plaintiffs' use of officer and "other exempt" dummy variables used in the relevant years (1973-78). *Cf.* R. Wonnacott & T. Wonnacott, *supra* n.74, at 100-03 (example of value of dummy variable for war or peace in purchase of government bonds). Second, the plaintiffs have run separate regression equations for exempts and nonexempts, and the results are consistent with pooled regressions. Third, the extent of any bias is not shown.

As for argument (ii)(2), the Bank points out that "[t]o the extent there are sex- and race-related differences in

actual Hay point distributions within a grade, the sex and race coefficient estimates are biased." Even assuming *arguendo* that the Bank has shown that there are such differences, it has not shown in which direction such estimates would be biased or given any indication of how much bias would result.

The three levels referred to in argument (ii) (3) refer to two shifts in Hay point structure: "[t]he pay associated with an increase in Hay point[s] shifts between nonexempt and exempt jobs and between exempt jobs with fewer or greater than approximately 1,500 Hay points." Defendant's Post-Trial Brief at 457. Our comments in discussing argument (ii) (1) are applicable here as well. As for the third step, the associated differential treatment of those over 1,500 Hay points, the Bank has failed to provide convincing evidence on the extent of bias caused by ignoring this difference.

The Bank asserts in argument (iii) that various Hay point distribution patterns "will manifest themselves as heteroskedasticity if a research fails to find the correct function specifications for Hay points." Defendant's Post-Trial Brief at 458. This argument fails. Heteroskedasticity does not cause biased estimates; for our purposes, it only produces error in confidence intervals and increases the variability of the group-status coefficient to a degree not indicated by the ordinary standard error for that term. *See* R. Pindyck & D. Rubinfeld, *supra*, at 96; D. Baldus & J. Cole, *supra* n.55, § 8A.42, at 285. Given that fact, the fact that the confidence interval for the coefficient of the dummy variable is larger than calculated does not necessarily mean that that coefficient is no longer statistically significantly negative. Moreover, even were it not significant, the sign of the coefficient of the dummy variable may nevertheless be probative. The Bank has shown that the relevant regressions offered by plaintiffs suffer from heteroskedasticity to such an extent that the coefficient of the dummy variable of those regressions are non-probative. The Bank has done little more than offer Dr. Stoikov's non-calculation-based comments on plots of resi-

duals performed by Dr. Madden as to some of Dr. Madden's regressions. *See* Testimony of Dr. Judith Stoikov, at 436-39; Plaintiffs' Exhibit 1410.

(7) "Plaintiff's cohort regression must be rejected as nothing more than a sample of their compensation regressions." (Defendant's Post-Trial Brief at 460).

The court does not rely on the plaintiffs' cohort analysis for its finding of discrimination. The cohort analysis does not control in any way for job level, and so cannot be used in support of a wage discrimination claim.

(8) "The Plaintiffs Database." (Defendant's Post-Trial Brief at 61).

This has already been discussed in section V(B)(2), *supra.*

(9) "Dr. Odell's Critique of the Blau-Madden Method for Detecting and Estimating Salary Differentials Due to Discrimination." (Defendant's Exhibit 556).

Dr. Odell's critique at trial of the Blau-Madden method was not raised in the Bank's lengthy post-trial brief. No doubt this was due in great part to Dr. Stoikov's having dealt with most of the same objections to the Blau-Madden method elsewhere. Both experts discussed, for instance, the question of omitted variables. We deal with some of the other issues here. First, as Dr. Odell properly points out, and as was conceded by the plaintiffs, Dr. Blau's multiplication of the coefficients of dummy variables by a factor of 100 to obtain percentage pay differentials involved a rough approximation.[110] The actual percentage pay differentials

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[110]Dr. Blau approximated the proportional reduction in salary $(1-e^x)$ by the magnitude of the coefficient of the dummy variable (x , where x is the coefficient of a dummy variable). This approximation was obtained by using the first term of the Maclaurin series expansion

$$1 - e^x = -x + = (1/2)x^2 - (1/6)x^3 + (1/24)x^4 - (1/120)x^5 + \ldots .$$

This approximation is valid for small values of x, but breaks down as x increases.

indicated by Dr. Blau's models were less than the approximated percentage pay differentials offered. However, our entire analysis has been concerned with the dummy coefficients themselves, not with the percentage approximations. Moreover, we are not concerned with magnitude, but only direction (*e.g.*, was the influence of race or sex negative). Thus our analysis is not tainted by Dr. Odell's valid objection.

Dr. Odell criticized the use of the natural logarithm of salary rather than salary itself. Dr. Blau has testified that the natural logarithm form was chosen because an enormous amount of empirical literature suggests that this is the correct approach. Dr. Stoikov herself uses the natural logarithm of salary in her wage regression analysis.

Dr. Odell quite properly asked why the "dummy coefficient" mode of determining inequality of treatment of twins was used, rather than the more general method wherein it would not be necessary to assume that all the coefficients for the explanatory variables are exactly the same for the two groups being compared. *See* section VI(E), *supra* (comparison of running separate regressions, comparing sets of coefficients, with using dummy variables). Dr. Blau has testified that she had a "very strong guess" that running separate regressions for males and females would not affect her results. Testimony of Dr. Francine Blau at 67. No evidence contradicted this empirical judgment by an expert with a background in labor economics who was familiar with the relevant empirical work. Dr. Odell is an impressive expert as to statistical issues, but not as to labor economics issues.

D. *Summary.*

The plaintiffs have failed to establish a *prima facie* case of compensation discrimination for females, either exempt or nonexempt, for any period of time.

The plaintiffs have established a *prima facie* case of compensation discrimination as to blacks, both exempt and

nonexempt, but only from 1973 on. This *prima facie* case is not successfully rebutted by the Bank by its own modeling or by its challenges to the reliability of the plaintiffs' modeling. A Phase I finding of liability therefore exists for blacks, both exempt and nonexempt, employed at the Bank at any time in the interval from January 1, 1973, to the end of the class period.

VIII. *Initial Placement and Promotion Analysis.*

A. *The Data Presented.*

As in the compensation case, the parties rely primarily on statistical evidence in their initial placement and promotion analyses.[111] As the Fifth Circuit recently stated, "[i]n

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[111]We deal separately with allegations of departmental segregation in section XI(A), *infra.*

Various comparisons between segments of the Bank's workforce and (1) the general labor force in the Dallas/Fort Worth SMSA, City of Dallas, and overall Bank workforce; (2) the corresponding segments of the work forces of all banks filing EEO1 reports; and (3) the corresponding segments of the work forces of banks in a study done by the Council on Economic Priorities, performed by Dr. Paula England, may arguably be construed as supporting the plaintiffs' case on the question of initial placement and promotion. We reject those studies here for the same reasons they are rejected in connection with the hiring case. *See* sections IX(B) and IX(D), *infra.*

We do not here describe the new hires analysis of Dr. Stoikov; discussion of that analysis is left to the hiring case (section IX, *infra).* That analysis focuses not on whether *those who have been hired* have received proper initial placement in relation to their individual qualifications, but on whether the right numbers of females (or blacks) *are being hired.* The fact that some females (or blacks) are being hired into higher-level job categories might indicate that there is no blanket exclusion of females (or blacks) from those jobs, but that fact says little about whether those people who were hired were properly placed in light of their individual qualifications. Alternately viewed, Dr. Stoikov's new hires analysis does not separate the effects of possible hiring discrimination from those of possible initial placement discrimination.

racial discrimination cases, statistics often demonstrate more than the testimony of many witnesses, and they should be given proper effect by the courts." *Swint* v. *Pullman-Standard*, 624 F.2d 525, 529 (5th Cir. 1980). At the same time, we must and do consider the anecdotal evidence. *See* section V(D), *supra*. The court turns once again to the numbers.

An individual's position within a hierarchy at any point in time is necessarily defined by where he started (initial placement) and the opportunities for upward movement he experienced (promotion). We refer to this positional discrimination, regardless of which of the two sources was responsible, as "placement" discrimination, "vertical" discrimination, and "occupational distribution" discrimination. The hiring case involves the statistical analysis of various subgroups within the exempt and nonexempt groups. Necessarily, such analysis is peripherally affected by any placement discrimination. Yet the questions of initial placement and promotion are separate from that of hiring. In evaluating hiring, we are concerned with whether various groups are being accepted into the organization. Initial placement focuses on the question of whether, when the person enters the organization, she is being placed where a race- or sex-blind employer would place her. Similarly, promotion looks at the individual after she has entered the organization and seeks to determine if she faces the same opportunity for advancement as her male (or white) counterpart.

1. *Plaintiffs' Data.*

(i) Plaintiffs' initial placement and promotion case is heavily dependent on the compensation models discussed in section VII, *supra*. Dr. Blau asserts that there are two major mechanisms for salary discrimination:

> (1) UNEQUAL PAY FOR EQUAL WORK. Pay differentials among individuals with similar qualifications that are due to pay differences within occupational categories.

> (2) UNEQUAL WORK. Pay differentials among individuals with similar qualifications that are due to differences in occupational distributions (*i.e.*, differences in access to occupations on the basis of race and/or sex). Such discrimination in access to occupations may be due discriminatory hiring *and/or* promotion policies of the firm.

Report of Dr. Francine Blau at 2 (Plaintiffs' Exhibit 504) (emphasis supplied). In the compensation case, we described the plaintiffs' regressions which sought to determine pay differentials after controlling for type of work performed. For instance, looking at regression (3) of the 1973 table in section VII(B)(1), *supra*, blacks earned *approximately* 9.97% less than whites, a "differential due to pay differences within occupations." *See id.* at 6. To calculate what discrimination blacks faced as a result of placement discrimination — what Dr. Blau refers to as "unequal work" — she relies on the hypothesis that the total differential due to discrimination is equal to the sum of that due to "unequal pay for equal work" and that due to "unequal work." This, according to Dr. Blau, is indicated by the pay differential just before controlling for job level (the "total differential due to discrimination") (16.77%, from regression (2) of the same table). She then calculates "unequal work" by subtracting the "unequal pay for equal work" from this total differential due to discrimination. She subtracts 9.97% from 16.77% to obtain a 6.8% "discriminatory difference" due to "unequal work." The same sort of calculation is performed as for other years and for women, and discriminatory differences are generally found[112] elsewhere as well (and of course are more meaningful if both the minuend and the subtrahend are statistically significant).

This difference represents the degree of (vertical) occupational segregation. It does not purport to state how much

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[112] *See* column of figures entitled "differential due to differences in occupational distributions" in the tables in section VII(B)(1), *supra*.

vertical discrimination is separately attributable to initial placement discrimination and to promotion discrimination. Thus in the general context of questioning concerning the vertical discrimination, Dr. Blau testified:

> Q. (By Ms. Peters): Well, other than promotion is there evidence where you can check or feel you can concerning the hiring and placements of white females —
>
> A. Okay.
>
> Q. or black females?
>
> A. Let me say with respect to the specific finding regarding white females *it could arise in 2 fashions and this finding does not distinguish which fashion it arises in or any combination.* One is that the — the white females and males hired into the non-exempt category are roughly similar in their qualifications but the white males are more likely to be promoted.
>
> It could also be the case though it's a hiring issue where as a woman with — white female with relative [sic] high qualifications is placed in the non-exempt category where is a similar male may be placed directly in the exempt category *and I can't on the basis of my finding distinguish which of those it is.*

Testimony of Dr. Francine Blau at 60-61 (emphasis supplied).

Dr. Blau's calculation of the salary differential due to (vertical) occupational distributions is straightforward: she determines the difference between the salary differential adjusted for personal characteristics and the salary differential adjusted for personal characteristics as well as job level. As a result, if either of the two differentials used in making the calculation is dubious, then the figure for occupational

distribution discrimination is itself dubious. We found in section VII, *supra*, that job level controls such as officer or other exempt status are not a sufficient control for jobs. At the same time, we found with the addition of Hay points that there was sufficient control. As a result, those regressions before 1973 could not be used for determination of "unequal pay for equal work" (in the Blau sense). Similarly then, the pre-1973 occupational distribution differentials based on these regressions are of little probative value.[113] *See* section VII(B)(1), *supra*, (tables, at extreme right-hand column).

As described earlier, the age proxy used for experience, when applied to females, misrepresents the experience of females and seriously affects the estimates of discrimination generated by the regressions. Thus neither the differential adjusted for personal characteristics nor the differential adjusted for personal characteristics and job level are accurate for females. Hence the difference — the indicator of occupational distribution discrimination — is unreliable for females.

(ii) Dr. Madden has offered a "cohort analysis," wherein data for the same group of people are analyzed at different points in time. *Cf.* Haworth, Gwartney, & Haworth, *Earnings, Productivity, and Changes in Employment Discrimination During the 1960's*, 65 Amer. Econ. Rev. 158, 163 (1975). *See* Plaintiffs' Exhibit 1308; Testimony of Dr. Janice Madden at 42 *et seq* and 212 *et seq*. In this cohort analysis, Dr. Madden asserted that she followed "all

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[113]It is important here to note that even were one to assume *arguendo* that only Equal Pay Act standards apply to female compensation discrimination, nothing would indicate that women ought be treated differently from men when it comes to Title VII occupational distribution discrimination. Thus any figure used to indicate such discrimination which could be used for blacks could also be used for females — absent independent nonstatutory reasons — even though that figure is based in part on a discrimination measure (that for unequal pay for comparable work) not legally cognizable for females.

those employees that were hired in 1969 and who are on board at the bank January 1, 1969" through time. *See* Testimony of Dr. Janice Madden at 43-45. She describes the procedure as follows:

> For each year, 1970 thru 1978, the effects of race and sex group on salary for those individuals hired in 1969 is derived by: (a) regressing sex and race on the natural logarithm of salary in current year to determine the unadjusted differential (column 1, Table 13); (b) regressing sex, race, experience, and education on the natural logarithm of salary in current year to determine the pay differential adjusted for worker's productivity characteristics (column 2, Table 13); (c) regressing sex, race, experience, education and a sex/experience interaction term on the natural logarithm of salary in current to determine the pay differential adjusted for worker's productivity characteristics and attributing all the joint variation in salary due to both experience and sex only to experience. (column 3, Table 13).

Plaintiffs' Exhibit 1308, 5-6. Table 13 of Dr. Madden's is reproduced in part below as Table 8:

		Adjusted Pay Differential for Personal Characteristics	Adjusted Pay Differential Attributing Joint Sex-Experience Variance to Experience
Black Males (relative to white males)			
	1970	-.231	-.228
	1971	-.275	-.274
	1972	-.250	-.247
	1973	-.279	-.288
	1974	-.284	-.300
	1975	-.256	-.266
	1976	-.323	-.333
	1977	-.355	-.361
	1978	-.350	-.366

		Adjusted Pay Differential for Personal Characteristics	Adjusted Pay Differential Attributing Joint Sex-Experience Variance to Experience
White females (relative to white males)			
	1970	-.213	-.153
	1971	-.268	-.181
	1972	-.281	-.161
	1973	-.337	-.199
	1974	-.390	-.277
	1975	-.449	-.357
	1976	-.331	-.266
	1977	-.429	-.332
	1978	-.545	-.331

Table 8

Dummy Coefficients, Employees Hired in 1969

See also Testimony of Dr. Janice Madden at 47. As discussed earlier, use of the sex/experience term in column 3 is intended to overcompensate for any overmeasurement for experience of females by use of the age proxy. *Id.* at 49-50.[114]

Table 8 shows that the pay differentials for black males and white females hired in 1969 increase relative to white males over the 1970 through 1978 period, using either of the

[114]The court is uncertain as to the role of the sex/experience term in column 3 for black males. However, it is not necessary to define the distinction between columns 2 and 3 for black males considering the similarity in pattern and size. *Cf.* Testimony of Dr. Janice Madden at 50.

personal-characteristics-adjusted columns.[115] Dr. Madden believes that an increasing pay differential over time in a cohort analysis of this sort could hypothetically stem from two causes:[116]

> (a) Lower rates of promotion and/or pay increase for black men, white women ... (b) differential turnover rates by race and sex such that the most productive black men, white women ... leave the bank while the most productive white men stay.

Plaintiffs' Exhibit 1308, at 6. Dr. Madden believes that if there was indeed differential turnover [*i.e.*, (b) above] "it would likely be the result of differences in incentive structures by race and sex;" *Id.* Dr. Madden claims to show, however, that the explanation is not (b), but (a). Explanation (a), in turn, is, according to Dr. Madden, due either to discriminatory promotion, or deleterious initial placement:

> There is [sic] really 2 things that could be accounting for the tremendous growth we are seeing in the wage differential overtime. One is these people are being placed in jobs that are dead end and that is [sic] not consistent with their qualifications because we are adjusting for education and experience, or they're not being promoted out of jobs at the same rate as white

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[115]Of course the model may just be malfunctioning, as by inaccuracy in controlling for productivity. However, as Dr. Madden pointed out with respect to the productivity error, "it has to be that . . . [she is] not measuring productivity confined [sic] with time." Testimony of Dr. Janice Madden at 52.

[116]While the plaintiffs also offer gross pay differentials (that is, pay differentials not adjusted for qualifications), we focus on the two more probative pay differentials offered. We do not decide, however, whether *with this sort of cohort analysis* gross pay differentials are probative.

males or there is something going on with datas so that productive white males leave the bank and productivity females — let's see.

. . .

Q. Vice versa.

A. Such that let's say the productive white males stay and the productive females and blacks leave.

. . .

Q. We know that typically if you look at a secretary that's been employed for job [sic] 5 years and look at her boss who say — employed in the job for 5 years, typically the work experience of the executive gets rewarded with higher percentage increase that that of the secretary. It's what we call in economics flat adjusting professions versus steep age earnings professionals. Some jobs over time that increases the faster with respect to age than other jobs. And so the job placement and what kind of ladder you get into with respect to further prospects have much effects percentage increases. There are jobs clear, it's known there are some jobs that experience lower growth with age than other jobs. Lawyers have faster increasing income over time than brick layers do.

Testimony of Dr. Janice Madden at 51-52 & 57.

Dr. Madden attempts to show that it is explanation (a) rather than (b) by examining the characteristics of the 1969 hires still active in the Bank in each succeeding year. *See* Plaintiffs' Exhibit 1308 ("Table 14"). She offered the following table:

	1970	1971	1972	1973	1974	1975	1976	1977
Number	498	282	215	151	135	126	107	95 (or 91)
Mean Years of Education	13.4	13.5	13.5	13.7	13.7	13.8	13.6	13.7
Percent								
College Graduate	17	22	21	20	19	19	16	19
Post Graduate	5	6	7	9	10	12	9	9
Female	66	63	61	61	60	60	65	65
Black	9	8	8	13	11	11	13	13
Other	9	8	8	5	4	3	4	5
Officers	3	10	16	23	31	34	30	34
Mean Haypoints	—	—	—	368	414	441	410	447

Table 9

Profile of 1969 Cohort, 1970-1978

(The number for 1977 is either 95 or 91. *See* Testimony of Dr. Janice Madden, at 60-61.)

In examining Table 9, Dr. Madden noted:

> From 1970 to 1974, women quit at a higher rate than men (*i.e.*, their share of the employment pool drops from 66 to 60 percent), while after 1975, the men quit at a higher rate. From 1970 thru 1978, blacks have lower turnover rates than whites (*i.e.*, they increase from 9 to 13 percent of the pool), while other minority groups have higher turnover rates. The turnover rate by educational level shows no consistent turnover patterns. Officers become an increasing share of the pool due to internal promotion. *All in all, nothing in the pattern reported in Table 14 reveals a differential turnover pattern which would explain the large increases in pay differentials by race and sex.*

Plaintiffs' Exhibit 1308, at 6-7 (emphasis added).

(iii) Utilizing the concept outlined in section VIII(A)(1)(i), *supra*, Dr. Madden used new specifications of salary to derive numbers for occupational distribution discrimination for 1969-78. *See* Plaintiffs' Exhibit 1309, at 1-2, and Table 1. As her explanatory variables for personal characteristics, she used education, bank experience, and other work experience in the form described by Plaintiffs' Exhibit 1308. Though her report is not clear on this point, her testimony appears to suggest that in this study there was not a separate sex-experience interaction term in order to adjust for overestimation of experience by use of an age-based work experience proxy for females.[117] *See* Testimony of Dr. Janice

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[117]This interpretation of the regression results presented in Plaintiffs' Exhibit 1309 is confirmed by comparing the 1970 column (2) figure for blacks and females with the two corresponding numbers on one of the computer printouts (Plaintiffs' Exhibit 130), at page 6, in column "B" of the table, entitled "Variables in the Equation." None of the symbols for variables listed thereunder appears to designate a sex experience interaction term. On the same page, under a table designated "Variables Not in the Equation," is a variable with the symbol "SEXEXO," which likely designates the sex experience interaction term. *(Compare also* regressions 9 and 11 for 1969-1972 and regressions 11 and 13 for 1973-78 in the tables in section VII(B), *supra.)*

It appears that Dr. Madden did perform one set of regressions which included sex/experience interaction terms as well as Hay points. *See, e.g.*, Plaintiffs' Exhibit 127 (Computer Printout, p.9). However, such set is not legally cognizable for a number of reasons:

(i) Dr. Madden neither testified about this set of regressions, nor mentioned it in the corresponding report (Plaintiffs' Exhibit 1309). Given the complexity of this case, it should not be the function of the court to mine for gems in the set upon set of regressions. We would not have encountered this particular set of regressions but for our decision to look at computer printouts in connection with understanding Plaintiffs' Exhibit 1309. And while it may be a good assumption that the variable designated "SEXEX" on the computer printout in the set is intended to designate a sex/experience interaction term in this set of regres-

Madden at 68 ("pay differential adjusted for personal characteristics that includes education, bank experience and other work experience") & 70; *see also* section VII(B)(1), *supra* (tables). In the period from 1969 to 1972, job placement was defined "only according to being in professional versus nonprofessional and officer versus nonofficer categories." Testimony of Dr. Janice Madden at 68. On the other hand, for the period 1973 through 1978, she used Hay points for exempts and Hay point conversions for nonexempts. *Id.*

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sions as well, we have no evidence of this. Moreover, the fact that Dr. Madden did not refer at all this set of regressions which included sex/experience interaction terms, but did so elsewhere in answer to the "age as proxy" problem, is itself warning to the court that perhaps this set is unreliable.

Finally, because this set of regressions was not raised in any of the reports relied on by the plaintiffs at trial, or testified to at trial, this set of regressions was not the focal point for adversary contest. This particular set of regressions may have had serious problems peculiar to it. (For instance, in the computer printout designated by Plaintiffs' Exhibit 126, dealing apparently with '69 hires, to include both "SEXEX" and "YRSBANXZ" terms, was impossible due to "F-Level or tolerance-level" problems. *See* Plaintiffs' Exhibit 126, at 71.) The adversary contest, with experts on both sides, would have been helpful here. *See generally* section V(C), *supra.*

(ii) Assuming *arguendo* that we correctly interpret the "B" column of the table "Variables in the Equation" as the regression coefficients, we would still be left with the task of somehow utilizing the other numbers on that table in the computer printout — and perhaps numbers elsewhere on the printout as well — to determine the statistical significance of the group status coefficients. This we cannot do in the absence of explicit directions for doing so, for reasons of institutional competence, discussed in section V(C), *supra,* which principle we also invoke in refusing to rework the Bank's overly disaggregated analysis of sections VIII(A)(2)(i) and VIII(A)(2)(iii), *infra.*

Her results, in part, were as follows:

		(1) Pay Differential Adjusted for Personal Characteristics	(2) Pay Differential Adjuusted for Personal Characteristics and Job Placement	(3) Pay Differential Due to Job Placement
Black Males (relative to white males)				
	1969	-19.7	-15.2	-4.5
	1970	-22.6	-17.2	-5.4
	1971	-20.7	-15.9	-4.8
	1972	-22.4	-16.8	-5.6
	1973	-15.6	-10.2	-5.4
	1974	-18.8	- 9.8	-9.0
	1975	-19.7	-10.5	-9.2
	1976	-19.0	- 9.9	-9.1
	1977	-19.0	-10.6	-8.4
	1978	-18.4	- 9.6	-8.8
White Females (relative to white males)				
	1969	-38.9	-16.8	-22.1
	1970	-36.0	-13.4	-22.6
	1971	-37.7	-14.3	-23.4
	1972	-37.5	-13.6	-23.8
	1973	-37.5	- 7.9	-29.6
	1974	-36.3	- 7.4	-28.9
	1975	-34.0	- 7.9	-26.1
	1976	-30.1	- 6.7	-23.4
	1977	-29.1	- 6.5	-23.6
	1978	-29.0	- 7.2	-21.8

Table 10

"Percentage"[118] Salary Differentials by Race and Sex

Plaintiffs' Exhibit 1309, Table 1 (as corrected).[119] *See* Testimony of Dr. Janice Madden at 69. All the coefficients in the first two columns are statistically significant at the 1% level. *See id.* at 70.

The caveats of the analysis in section VIII(A)(1)(i), *supra*, apply here as well. The controls for job level for the pre-1973 regressions are almost useless, and hence all pre-1973 indicators of occupational distribution are suspect. And, as discussed earlier, the results for females are suspect because of the age-for-experience proxy problem.

(iv) Dr. Madden also ran regressions which seek to determine the effect of race or sex on the Haypoints of employees active in 1973 through 1978. *See* Plaintiffs' Exhibit 1309, at 2 and Table 2. In Table 2 she showed the Hay point level of blacks and females relative to white males in column 1, unadjusted for any employee characteristics (more technically, column 1 consists of the race and sex coefficients when Hay points are regressed on race and sex dummy variables). Thus, we see, for example, that the average black male held a job that was valued at 125 fewer Hay points than that held by the average white male. Column 2 controls for certain personal characteristics and various measures for education and experience. Dr. Madden did not clearly testify as to just what explanatory variables were used, making only a general statement on the nature of the variables and giving a citation to a computer printout. *See* Testimony of Dr. Janice Madden at 71-72. It appears from the court's independent analysis of the lengthy computer printout that the non-group-status explanatory variables, included were: months in bank squared; months with Republic; highest grade completed; age in months;

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[118]It appears that these are percentage approximations. *See* n.110, *supra*.

[119]These results are presented in section VII(B)(1), *supra* (tables) as well, albeit outlined in different form.

and age in months squared. *See* Plaintiffs' Exhibit 110 (Printout 10), at 100, 296. *Compare id.* at 227 *with* Plaintiffs' Exhibit 1309, Table 2, at column 2 (1973). No sex-experience interaction term appears to have been included. Her results from Table 2 of Plaintiffs' Exhibit 1309 are listed below:

	(1) Total Haypoint Differential	(2) Haypoint Differential Adjusted for Personal Characteristics
Black Males (relative to white males)		
1973	-125	-32
1974	-145	-56
1975	-162	-68
1976	-156	-69
1977	-161	-69
1978	-162	-75
White Females (relative to white males)		
1973	-398	-227
1974	-376	-223
1975	-389	-220
1976	-380	-207
1977	-384	-215
1978	-375	-211

Table 11

Hay Point Differentials by Race and Sex,
All Active Employees, 1973-1978

It appears that the only non-statistically-significant Hay point differential is the "-32" for black males in column 2 for 1973. *Compare* Plaintiffs' Exhibit 1309 (Table 2) *with* Testimony of Dr. Janice Madden at 78.

(v) Effects of sex and race on job placement within non-professional categories.

Dr. Madden also examined the effects of sex and race on job placement within nonexempt jobs. Job grades were available to rank nonexempt jobs for 1969 through 1978; Hay points were available to rank nonexempt jobs after 1973.

In separately analyzing nonexempts, the plaintiffs believe that they are subjecting their own analysis to truncation bias, described earlier in section VII, *supra*. The plaintiffs appear to have asserted that as a result of this self-imposed truncation bias, their statistical proof of discrimination will be made more difficult: any indication of discrimination will be downwardly biased.[120] *See* Testimony of Dr. Janice Madden at 79-80. Any indication of discrimination found using this method will be all the more impressive.[121]

Tables 3 and 4 of Plaintiffs' Exhibit 1309, designated below as Tables 12 and 13, report the effects of race and sex on job grades for 1969 thru 1972 and for 1973 thru 1978, respectively. Column 1 reports unadjusted grade differential for each race/sex group in various years. Column 2 reports the grade differential apparently adjusted for education by way of years of education and dummy variables for attaining (i) exactly 12 years (HS), (ii) exactly 16 years, and (iii)

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[120]Dr. Madden also offers an additional econometric reason for downward bias. *See* Testimony of Dr. Janice Madden at 83.

[121]Concededly, Dr. Stoikov appears to have testified to the general effects of truncation bias as being the converse of what plaintiffs' experts believe. *See* Testimony of Dr. Judith Stoikov at 151-52. But she did not testify specifically as to the effect of truncation bias on this particular set of regressions. *See* n.101, *supra*.

postgraduate education, experience, for dummy variables indicating date of hire, for months of education, for 72 subtracted from age in months, and for those months squared. *See* Plaintiffs' Exhibit 1309, at 3; Plaintiffs' Exhibit 1308, at 1-2. Column 3 reports the grade differential when a variable is added whereby all variance in grade which could be statistically attributed to either sex or experience is attributed to experience. *See* Plaintiffs' Exhibit 1309, at 3. Tables 12 and 13 are reproduced in part below. All the coefficients in both tables are statistically significant at the 1% level:

	Total Grade Differential	Total Grade Differential Adjusted for Personal Characteristics	Total Adjusted Grade Differential Attributing Joint Sex Experience Differential Due to Experience
Black Males (relative to white males)			
1969	-3.209	-3.148	-2.799
1970	-3.144	-2.867	-2.741
1971	-2.924	-2.392	-2.316
1972	-3.075	-2.660	-2.620
White Females (relative to white males)			
1969	-2.377	-2.188	-3.014
1970	-2.278	-2.126	-2.494
1971	-1.632	-1.501	-1.773
1972	-1.356	-1.152	-1.302

Table 12

Grade[122] Differentials by Race and Sex, Nonexempt Employees, 1969-72

[122]In 1969-72, there was a 17-grade system. *See* Testimony of Dr. Janice Madden at 81.

	Total Grade Differential	Total Grade Differential Adjusted for Personal Characteristics	Total Adjusted Grade Differential Attributing Joint Sex Due to Experience
Black Males (relative to white males)			
1973	-1.500	-1.330	-1.338
1974	-1.248	-1.143	-1.153
1975	-1.215	-1.174	-1.183
1976	-1.102	-1.100	-1.112
1977	-1.132	-1.076	-1.083
1978	-1.086	-1.024	-1.031
White Females (relative to white males)			
1973	- .759	- .837	- .694
1974	- .451	- .523	- .350
1975	- .350	- .415	- .206
1976	- .372	- .511	- .323
1977	- .554	- .700	- .595
1978	- .542	- .632	- .538

Table 13

Grade[123] Differentials by Race and Sex,
Nonexempt Employees, 1973-78

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[123]In the period covered by this table, there was a 10-grade system. *See* Testimony of Dr. Janice Madden at 81.

Table 5 of the report, reproduced below in part and designated as Table 14, corresponds to the analysis of Table 13 for the 1973 through 1978 nonexempt employees, but using Hay points rather than job grades. Just as with Tables 12 and 13, statistically significant negative job placement differentials are indicated for both blacks and females.

	Total Haypoint Differential	Total Haypoint Differential Adjusted for Personal Characteristics	Total Adjusted Haypoint Differential Attributing Joint Sex Experience Differential to Experience
Black Males (relative to white males)			
1973	-33.3	-29.5	-29.6
1974	-28.4	-26.0	-26.2
1975	-27.6	-26.6	-26.8
1976	-25.8	-25.7	-26.0
1977	-26.7	-25.4	-25.6
1978	-25.6	-24.2	-24.3
White Females (relative to white males)			
1973	-20.2	-21.9	-19.6
1974	-13.4	-15.1	-11.8
1975	-11.1	-12.6	- 8.1
1976	-10.6	-13.8	- 9.6
1977	-14.9	-18.3	-15.8
1978	-14.0	-16.2	-13.7

Table 14

Haypoint Differentials by Race and Sex,
Nonexempt Employees, 1973-78

Dr. Madden noted the fact that in the regressions for nonexempts, placement discrimination seemed less for females than for blacks, while in regressions for all employees [in section VIII (A) (1) (iv), *supra*], blacks seemed to suffer less placement discrimination. Thus, Professor Madden interprets that:

> [W]ithin the nonexempt grades black males or that race placys [sic] at the significant much more significant role in job placement within the nonexempt category whereas the nonexempt category whereas for females it was the difficulty of getting a job in the exempt category that was primarily their job placements problem at Republic.
>
> . . .
>
> [F]or this group of white females it's the promotion from nonexempt into exempt, the placement in nonexempt rather than exempt that accounts for so much of their job place — the — the job place — the fact they had them on their job placements policy, whereas for black males there was job placement effects within the nonexempt categories. There was job placement in being placed in nonexempt rather than exempt but that's not as large for the black males relative to white females.

Testimony of Dr. Janice Madden at 86-87.

(vi) Utilizing a sample of employees hired from 1969-78 used in Defendant's Exhibit 458, as "corrected," Dr. Madden offered a multiple regression analysis which assertedly shows that a female or black is less likely to be hired as a professional, and less likely to be a professional in 1978. *See* Plaintiffs' Exhibit 1410 (Table 3). The coefficients for race and sex were statistically significant as to both analyses, both before and after controlling for various personal characteristics. We reproduce the table below:

Independent Variables	Dependent Variable: Hired as Professional		Dependent Variable: Professional in 1978		
	1	2	3	4	5
Female	-.5926**	-.2569**	-.6317**	-.4324**	-.4386**
Black	-.2379**	-.1485*	-.2742**	-.1814**	-.1710**
Master's Degree		.1475		.1743*	.1965*
Bank Related Major		.4098**			.1666*
Female with Bank Related Major		-.2516*			.0318
Natural Log of Total Related Pre-RNB Experience		.0368**			
Bachelor's Degree				.1175*	.1311*
Natural Log of Total RNB Experience				.0942**	.0949**
Natural Log of Total Pre-RNB Experience					.0295*

*Statistically significant at the 5% level on a one-tailed test.

**Statistically significant at the 1% level on a one-tailed test.

Table 15

2. *The Bank's Data*

The Bank offers three sets of analyses on promotional opportunities [sections VIII(A)(2)(i), (ii)(b), and (iii), *infra*] and two sets on initial placement [sections VIII(A)(2)(ii)(a) and (iii), *infra*].

i. Promotions: Work Force Comparison.

Dr. Patrick Odell[124] compared promotions in each "job family"[125] against the representation of blacks and females in that job family. Actual proportions of promotions for blacks and females in each two-digit[126] job family were compared against their representation in the work force for that job family for the period 1969-78. This analysis was performed using the Z-score[127] statistical testing. "Promotion" was defined, roughly speaking, as any upward move in job grade or Hay points, a move from nonexempt status to exempt status, and/or an election to officership or move upward in officer level. *See* Defendant's Post-Trial Brief at 258; Defendant's Exhibit 550; Testimony of Thomas Barksdale. That is, under this definition, even a small upward move in Hay points would be counted in the same fashion as the election of an employee to officership. Dr. Odell prepared for each job family two charts, one for blacks and one for females, such as the following for job family 310 for blacks.

Job Family-530
Nonexempt

		Blacks	Total
1969	# Promoted	0	20
	# In Workforce	0	92
	Z Score	0.0000	*
	Randomness Range	0 - 0	*
1970	# Promoted	1	32
	# In Workforce	1	107
	Z Score	0.0000	*
	Randomness Range	0 - 1	*

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[124]Patrick Odell, a Ph.D. in mathematical statistics, is a Professor of Mathematic Sciences and Environmental Sciences at the University of Texas at Dallas who has published over 30 papers in peer review journals. He is a member of a number of technical and scientific societies, including the American Statistical Association and the Texas Academy of Science.

[125]*See* section IX(E), *infra.*

[126]*See* section IX(E), *infra.*

[127]*See* section IX(A), *infra.*

		Blacks	Total
1971	# Promoted	0	19
	# In Workforce	5	105
	Z Score	0.0000	•
	Randomness Range	0 - 2	•
1972	# Promoted	2	22
	# In Workforce	3	92
	Z Score	0.0000	•
	Randomness Range	0 - 2	•
1973	# Promoted	1	22
	# In Workforce	7	98
	Z Score	0.0000	•
	Randomness Range	0 - 3	•
1974	# Promoted	1	21
	# In Workforce	18	111
	Z Score	0.0000	•
	Randomness Range	1 - 6	•
1975	# Promoted	0	14
	# In Workforce	8	89
	Z Score	0.0000	•
	Randomness Range	0 - 3	•
1976	# Promoted	1	22
	# In Workforce	7	83
	Z Score	0.0000	•
	Randomness Range	0 - 3	•
1977	# Promoted	0	17
	# In Workforce	8	79
	Z Score	0.0000	•
	Randomness Range	0 - 3	•
1978	# Promoted	4	30
	# In Workforce	12	86
	Z Score	0.0000	•
	Randomness Range	2 - 7	•

Table 16

Comparison of Promotions Against Workforce Representation by Job Family

From Defendant's Exhibit 7. *See* Defendant's Exhibits 7-10.

The Bank asserts that this promotions analysis generally showed no underutilization of either blacks or females. For instance, with respect to the subclass of black nonexempt employees, the analysis revealed one instance of statistically significant disparity adverse to blacks [job family 570 (clerk-typist) in 1973], and seven or eight observations of statistically significant disparities favorable to blacks. All other promotion counts for black nonexempts fall within the "randomness range."[128]

These comparative analyses are of little value for at least two reasons. First, in many of the units of observation (*e.g.*, 1971 for job family 310 for blacks) zero promotions falls within the randomness range. As noted in section IX(G), *infra*, when this occurs, results falling within the randomness range show nothing: even were there rampant promotion discrimination, resulting in no black or female promotions whatsoever, such a test would not indicate discrimination. Furthermore, the disaggregation itself causes fragmentation problems, *see* n.210, *infra;* no reason appears to the court why the units of observation needed to have consisted of so few individuals that such statistical difficulties arose. Indeed, the Bank's own expert, Dr. Stoikov, performed calculations, described in section VIII(A)(2)(ii), *infra*, involving aggregation across years and jobs in support of her initial placement and promotion analysis. More aggregation would have been helpful. Second, the proxy for promotion is quite crude. Election to officership is treated the same way as a small upward move in Hay points. *Cf.* section VII(B), *supra* (Dr. Spalding's analyses).

ii. Dr. Stoikov presented analyses intended to answer two questions. First, do men and women (or blacks and nonblacks), possessing equal productive value, who come to

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[128] *See* section IX(E), *infra*.

work for the Bank have the same probability of being hired into professional job families? Second, do men and women (or blacks and nonblacks), who are hired into nonprofessional job families and have equal productive value, share the same probability of being promoted to professional job families? *See* Defendant's Exhibit 458.

(a) Dr. Stoikov's answer to the first question — that concerned with initial placement — is that females are positively advantaged by their sex while blacks are neither advantaged nor disadvantaged by their color. The data used in this analysis include all people in the sample used for Dr. Stoikov's compensation analysis who were hired during the period 1969-78.

Because the probability of being hired into a professional job family is measured in dichotomous form (*i.e.*, an employee either is or is not hired into a professional job family), Dr. Stoikov believed it advisable to corroborate probability estimates obtained with a "linear" technique (such as ordinary least squares) with probability estimates obtained with techniques such as "probit" and "logit" analysis. J. Stoikov, *Supplementary Report on Probabilities of Being Hired or Promoted into Professional Job Families at Republic National Bank of Dallas* 2 (1979) (Defendant's Exhibit 458).

Using various variables for employee educational and prior experience characteristics at time of hire which Dr. Stoikov considered indicative of productivity, she sought to determine how sex and race affected the probability of being hired as a professional. She obtained the following results from the ordinary least squares methodology:

Variable	Sex Regression Coefficient	Race Regression Coefficient
Sex (1 = Female)	.0917**	
Race (1 = Black)		-.1078**
Hire Year	.0069	.0096
Less than High School	-.3261	-.2874
High School Graduate	-.1337**	-.1146**
Degree in Banking	.7750**	.7441**
Degree in Nonbanking Subject	.4937**	.4976**
Masters Degree	.1159*	.1014*
Time Out of Labor Force	-.0007*	-.0005
Prior Months of Experience as:		
Bank Profess. or Officer	.0009	.0008
Nonbank Profess. or Manager	.0003	-.0001
Technician	.0020	.0018
Clerical Supervisor	.0007	.0004
Secretary	-.0007	-.0007
Other Clerical	.0013*	.0013
Total Experience	.0003	.0002
Constant	-.4618	-.5554

*Statistically significant at the 5% level on a one-tailed test.
**Statistically significant at the 1% level on a one-tailed test.

This table is derived from Testimonial Exhibit 22 (Defendant's Exhibit 557).

Table 17

Regression Coefficient Relating Professional Status at Hire to Employee Characteristics

Thus, Dr. Stoikov found that the estimated value of being female is a statistically significant + .0917 on the probability of being hired as a professional. However, Dr. Stoikov found that there was a race coefficient of -.1078 which was also

statistically significant. This, Dr. Stoikov asserted, was due not to discrimination against blacks but to the fact that females were benefited by affirmative action. Among the evidence offered to justify this interpretation was the fact that when compared with white males, the regression shows no statistically significant race coefficient. *See* table following.

	Regression Coefficient	
Race (1 = Black)	-.0165	(t-statistic
Hire Year	.0035	of race
Less than High School	-.1142	coefficient
High School Graduate	-.0289	-.43)
Degree in Banking	.8150**	
Degree in Nonbanking	.3692**	
Masters	.1484**	
Time out of Labor Force	-.0004	
Prior Months of Experience as:		
Bank Profess. or Officer	.0009	
Nonbank Profess. or Manager	-.0007	
Technician	.0004	
Clerical Supervisor	-.0009	
Secretary	-.0007	
Other Clerical	-.0002	
Total Experience	.0005	
Constant	-.22039	

**Statistically significant at the 1% level on a one-tailed test.

This table is derived from Testimonial Exhibit 24 (Defendant's Exhibit 557).

Table 18

Regression Coefficients Relating Professional Status at Hire to Employee Characteristics

Dr. Stoikov also performed a "probit" analysis which generated useful results. Probit analysis has an advantage over ordinary least squares in dealing with probabilities: with the latter, but not with the former, it is possible the

regression will predict greater than a 100% probability of being hired as a professional or smaller than a zero probability of being hired as a professional. Testimony of Dr. Judith Stoikov at 178.

Using the same variables as in her ordinary least squares analysis, Dr. Stoikov's probit analysis generated one statistically significant coefficient in favor of females and one nonstatistically significant coefficient in favor of blacks. *Id.* at 180; Testimonial Exhibit 25 (Defendant's Exhibit 557).[129] Thus the probit analysis differed from the least squares analysis in that it showed that being black does not handicap one's chances of being placed into a professional job family.[130]

Dr. Madden challenged the sample used by Dr. Stoikov for these "placement as professional" analyses on technical grounds. Dr. Stoikov conceded that criticism as to these analyses had some merit, and so made the appropriate corrections. *See* Defendant's Exhibit 573. The "corrected" linear regression coefficient for sex was negative and insignificant, while that for race was positive and insignificant. *Id.* at 1. The "corrected" probit analysis indicated positive, but what appear to be insignificant, influences for race and sex on professional status. *Id.* at 2.

(b) On the second issue, Dr. Stoikov also performed an analysis on the influence of sex or race on the probability of being promoted from a nonprofessional to a professional position, using as her sample all sample members hired into nonprofessional job families. *See* J. Stoikov, *supra*, at 2

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[129]Because the coefficients from probit regressions are not as easily interpretable as those from ordinary least squares regressions, the table is not reproduced here. *See* Testimony of Dr. Judith Stoikov at 179.

[130]Dr. Stoikov also used the probit estimations to derive comparative probabilities of being hired into the professional pay structure for males and females, blacks and nonblacks, assuming various employee characteristics. *See* Testimony of Dr. Judith Stoikov at 180-82.

(Defendant's Exhibit 458). Using a variety of variables intended to control for productivity, she obtained the following regression coefficients:

Variable	Sex Regression Coefficient	Race Regression Coefficient
Sex (1 = Female)	-.0638 (t-statistic of -1.12)	
Race (1 = Black)		-.0774 (t-statistic of -1.64)
Service at RNB	.0782**	.0716**
Less than High School	-.2543	-.2353
High School Graduate	.0215	.0205
Degree in Banking Subject	.3152**	.3153**
Prior Months of Experience as:		
Technician	-.0015	-.0016
Clerical Supervisor	.0028*	.0027*
Bank Profess. or Officer	.0197	.0200*
Nonbank Profess. or Manager	-.0015*	-.0016*
Time Out of Labor Force	-.0012**	-.0014**
AIB Courses or Training	.2922**	.2883**
Average Occasions of Absence	-.0262**	-.0288**
Overtime Frequency	.0238*	.0267*
Willing to Accept Promotion if:		
Additional Pressure	.0875*	.0750*
Additional Traveling Required	.1323**	.1436**
Career Importance	-.0385	-.0194
Constant	-.1898	-.1786

*Statistically significant at the 5% level on a one-tailed test.
**Statistically significant at the 1% level on a one-tailed test.

This table is derived from Testimonial Exhibit 27 (Defendant's Exhibit 557).

Table 19

Regression Coefficients Relating Professional Status in 1978 to Employee Characteristics

A probit analysis using the same variables generated results similar to the least squares estimates: the race and sex coefficients were statistically insignificant. However, whereas both group status coefficients were negative with least squares here, the race coefficient was negative while the sex coefficient was positive. *See* Testimonial Exhibits 28 & 29, Defendant's Exhibit 557 (comparison for male/females, nonblacks/blacks with specified employee characteristics).

iii. Work force utilization analysis.

Dr. Odell also performed "work force utilization" analyses of the sort offered by Dr. Stoikov as to the hiring case. *See* Defendant's Exhibits 24-27. These analyses compared the rate at which the Bank filled its jobs, either through external hire or internal promotion, against actual labor market availability of persons qualified to hold such jobs (as defined by the Bank). *See* Defendant's Post-Trial Brief at 265.

According to the Bank,[131] "utilization has been measured in terms of jobs 'filled' by blacks and females, as reflected in the number of individuals by race and sex *hired into* or *promoted into* a particular job family in a given year." *Id.* at 268 (emphasis supplied.) This measure of utilization was then compared with black and female availability (as defined by the Bank) in a certain geographical area (the Bank chose the Dallas SMSA for nonexempts and what it designated the "SOUTHWEST STATES SMSA (LA, AR, OK, NM, TX)"[132] for exempts). This analysis consisted of a series of pages of the following sort:

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[131]Dr. Odell did not testify at any length as to the nature of his analyses in Defendant's Exhibits 24-27.

[132]*See* Defendant's Exhibits 25 and 27.

Job Family-310
Nonexempt

		Blacks	Total
1969	# Jobs Filled	6	59
	% of Total Filled	10.2	100.0
	% of SMSA Representation	3.5	100.0
	Z Score	0.0000	*
	Randomness Range	0 - 5	*
1970	# Jobs Filled	1	14
	% of Total Filled	7.1	100.0
	% of SMSA Representation	3.5	100.0
	Z Score	0.0000	*
	Randomness Range	0 - 2	*
1971	# Jobs Filled	0	9
	% of Total Filled	0.0	100.0
	% of SMSA Representation	3.5	100.0
	Z Score	0.0000	*
	Randomness Range	0 - 1	*
1972	# Jobs Filled	0	15
	% of Total Filled	0.0	100.0
	% of SMSA Representation	3.5	100.0
	Z Score	0.0000	*
	Randomness Range	0 - 2	*
1973	# Jobs Filled	3	24
	% of Total Filled	12.5	100.0
	% of SMSA Representation	3.5	100.0
	Z Score	0.0000	*
	Randomness Range	0 - 3	*
1974	# Jobs Filled	2	19
	% of Total Filled	10.5	100.0
	% of SMSA Representation	3.5	100.0
	Z Score	0.0000	*
	Randomness Range	0 - 2	*

		Blacks	Total
1975	# Jobs Filled	1	20
	% of Total Filled	5.0	100.0
	% of SMSA Representation	3.5	100.0
	Z Score	0.0000	*
	Randomness Range	0 - 2	*
1976	# Jobs Filled	1	33
	% of Total Filled	3.0	100.0
	% of SMSA Representation	3.5	100.0
	Z Score	0.0000	*
	Randomness Range	0 - 3	*
1977	# Jobs Filled	6	53
	% of Total Filled	11.3	100.0
	% of SMSA Representation	3.5	100.0
	Z Score	0.0000	*
	Randomness Range	0 - 4	*
1978	# Jobs Filled	4	57
	% of Total Filled	7.0	100.0
	% of SMSA Representation	3.5	100.0
	Z Score	0.0000	*
	Randomness Range	0 - 4	*

Table 20

WORKFORCE UTILIZATION BY RACE (1969-1978)
Compared Against Dallas-Fort Worth SMSA
By Job Family

From Defendant's Exhibit 24.

The Bank states that the results "directly controvert Plaintiffs' . . . claim that the bank discriminates in promotion and job assignment." Defendant's Post-Trial Brief at 266.

There are at least two reasons why this work force utilization analysis is not probative on the issues of initial placement or promotion. First, there is too high a level of disag-

gregation: zero is often in the randomness ranges[133] and fragmentation errors[134] arise. Second, the geographic markets used are inappropriate. Dallas-Fort Worth SMSA figures were used for nonexempts. We reject the use of this geographic market for nonexempts in the hiring case, for reasons described in section IX(G), *infra;* no substantial reason has been offered as to why this geographic market ought to be here used, and so we reject it here as well. The Bank similarly offered no substantial justification, either at trial or in a report, for the use of the five-state SMSA geographic market for the exempt analysis. *See, e.g.*, Defendant's Preliminary Statistical Brief at 61. *Cf. id.* at 26; Defendant's Final Statistical and Trial Brief at 65-66. The Bank should have made more clear the connection between the fact that exempts tend to have more diverse geographical backgrounds and something as specific as the selection of five Southwestern states as a labor market. *See* section IX(F) & n.205, *infra.* In contrast to the hiring studies done by Dr. Stoikov, in which she at least used the Bank's actual recruiting patterns to establish geographic markets, Dr. Odell offered no justification for the use of the five-state "SMSA" instead of any other facially reasonable market.

B. *Applying the Law to the Data.*

Courts have recognized the variety of statistical evidence usable in proof regarding initial placement and promotion discrimination. First, it appears that the plaintiff need not separate an employer's discrimination in initial placement from discrimination in promotion. As discussed earlier, an employee's present position on the hierarchy ("placement") is a result of his initial placement and subsequent promotions. Present placement has been used by courts both as proof of initial placement discrimination, and as evidence of promotion discrimination. In determining that the lower court had committed error in its finding that the defendant

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[133]*See. e.g.*, section IX(G), *infra.*

[134]*See, e.g.*, n.210, *infra.*

employer had "at no time made initial job *assignments* (either to departments or the specific jobs) on the basis of an employee's race," the Fifth Circuit has looked at evidence that the average job class for blacks was *lower* on the hierarchy than the average class for whites. *See James* v. *Stockham Valves & Fittings Co.*, *supra* n.95, at 321 & 326-27 (emphasis supplied). In *Davis* v. *Califano*, 613 F.2d 957, 965 (D.C. Cir. 1979), the D.C. Circuit looked at disparities in GS-level between males and females, in the context of a white female plaintiff's allegations of promotion discrimination. Similarly, the Fifth Circuit in *Fisher* v. *Procter & Gamble Manufacturing Co.*, *supra* n.99, at 543-44, looked at existing placements as evidence of discrimination in promotion. *See also Johnson* v. *Uncle Ben's, Inc.*, No. 78-1437, slip op. at 424-25 & 425 n.2 (5th Cir. Oct. 17, 1980).

Second, the Fifth Circuit has at least implicitly accepted, under appropriate circumstances, the use of groups' wages to proxy for their position on the hierarchy. Thus, as with the job allocation issue in *Stockham Valves*, *supra*, the court was influenced by a disparity in the average hourly earnings of rate between black employees and white employees as of September 1973. *See id.* at 321 & 327. *Cf Kirby* v. *Colony Furniture Co.*, 613 F.2d 696, 701 (8th Cir. 1980).

Third, the Fifth Circuit permits a *prima facie* case of promotion discrimination to be established by comparing the percentage of promotions obtained by blacks with their percentage representation in the relevant work force. *See Watkins* v. *Scott Paper Co.*, 530 F.2d 1159, 1190-93 (5th Cir.), *cert. denied*, 429 U.S. 861 (1976).

Fourth, it appears that a particular analytical construct must be used when business necessity is used to justify standards or procedures which operate to disparately deny promotions to blacks. As described by the Fifth Circuit in *Swint* v. *Pullman-Standard*, *supra*, at 535-36:

> [W]e derived from *Griggs* v. *Duke Power Co.* three factors for determining whether promotional standards

and procedures arise from a legitimate business necessity so as not to constitute a "Title VII violation: "(1) The standards and procedures were not shown to be significantly related to successful job performance. (2) The procedures operated to disqualify a substantially higher rate of Blacks than Whites. (3) The jobs had formally [sic] been filled by whites as part of a longstanding practice of discrimination . . ." *Rowe* [457 F.2d] at 355.

. . .

[F]or a practice, which is not intentionally discriminatory or neutral but perpetuates consequences of past discrimination, to be justified by business necessity, the practice must "not only foster safety and efficiency, but must be essential to that goal . . . and there must not be an acceptable alternative that will accomplish the goal "equally well with a lesser differential racial impact." *Parson* v. *Kaiser Aluminum & Chemical Corp.*, 575 F.2d 1374 (5th Cir.), *cert. denied*, 441 U.S. 968, 99 S.Ct. 2417, 60 L.Ed.2d 1073 (1979).

Applying these standards, we find the evidence presented by the plaintiffs establishes a *prima facie* case of discrimination in initial placement and in promotion for blacks and female nonexempts for all years and black exempts from 1973. They do not establish a case for female exempts for any year. We also find that the Bank does not successfully rebut any *prima facie* case. *See* section IX(C) (re standards for *prima facie* case and rebuttal).

1. *Black and Female Nonexempts.*

The court rests its finding on the establishment of the *prima facie* case as to black nonexempts and female nonexempts primarily on the studies controlling for personal characteristics and adding the sex/experience interaction term, discussed in section VIII(A)(1)(v), *supra*. While such separate regressions may suffer from some truncation bias, such bias would make it more, not less, difficult for

plaintiffs to prove discrimination. Moreover, the results from these regressions are consistent with those from other regressions. *Cf.* Testimony of Dr. Janice Madden at 89 & 91.

As has been described more fully in section VIII(A)(1)(v), *supra*, Dr. Madden examined the effects of sex and race on job placement within nonexempt jobs, and found, both before and after controlling for various productivity characteristics and adjusting for age as a bad proxy for the experience of females,[135] that for each race-sex group for each year there was a statistically significant coefficient for group status when the dependent variable was job placement (as measured by grades and/or Hay points) in non-professional jobs. As shown by Table 3, for the 1969-72 period, on a 17-grade system, black nonexempt males tended to be placed approximately three grades lower than white males. When non-group-status explanatory variables are included, black nonexempt males were placed 2 to 3 grades lower. For white females, the unadjusted grade differentials were approximately 1 to 2 grades, while when non-group-status explanatory variables are included, grade differentials ranged from about 1 grade to 3 grades. In Table 4, for 1973-78, on a 10-grade scale, the corresponding differentials for blacks were each about one, while for women ranged from .350 to .759, and .206 to .694[136]

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[135]This was done by attributing all variance in grade or Hay points which could be statistically attributed to either sex or experience to experience.

[136]Dr. Madden recognized that grades were an ordinal index; someone at a grade level of 10 is not doing a job twice as difficult as someone at grade 5. *See* Testimony of Dr. Janice Madden at 84. She also recognized that:

> [T]he dependent variable in this situation in the variable situation in the 1969 to '72 cases can really only have a unit value of 1 to 17. In other words, 1, 2, 3, 4, 5, 6, on to 17, but it cannot be a value of 10.5, it cannot be a value of 19. It could not be a value of negative .3. The linear regression technique can technically on individual give us predictions which are outside

Dr. Madden also performed the same analyses as in Table 4, except with Hay point conversions, with similar results.

These analyses establish a *prima facie* case. Much of the discussion of the Bank's objections to plaintiffs' analyses in the *prima facie* compensation case are applicable here as well. We discuss these arguments *seriatim:*

> (i) "The primary weakness of Dr. Madden's analyses is her lack of understanding of the Bank's use of Hay Points in its salary administration. This ignorance has resulted in an analysis that relies on a dependent variable which is not an accurate measure of employee skill at time of hire." (Defendant's Post-Trial Brief at 151).

This description of the "primary weakness" in Dr. Madden's analysis is unclear; indeed, the passage above is the full extent of the Bank's elucidation of this argument. We can do no more than cite it.

> (ii) "[D]r. Madden's use of Haypoints and/or non-exempt job grades in her rebuttal analysis does not measure the employer's points at time of hire, but at year end. Thus, she does not differentiate between Hay points at time of hire, and at time of last job at year end . . . Her dependent variable, therefore, is not an

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the range of possibility. So the way to correct for this is to use a multinomial logit . . .

Id. at 88.

Dr. Madden herself first raised the issue of ordinality. In nevertheless relying on these studies as evidence for placement discrimination, it was implicit that she did not believe that this was an error, or, if an error, one so serious as to affect the direction or significance of her dummy coefficients. As to the other possible problem, Dr. Madden believed that while it would have been preferable to use a logit analysis, it would have been expensive, and appeared to say that the problem would not affect her results when one is studying here, not damages, but the "general effects of race and sex." *See* Testimony of Dr. Janice Madden at 88-89.

> accurate measure of skill or qualifications at time of hire, and, accordingly, is completely invalid as a measure of initial job placement." (Defendant's Post-Trial Brief at 152).

Unquestionably, Dr. Madden's analysis cannot assert that there was initial placement discrimination. After all, she is examining people at their then current positions, and such positions are the result of initial placement *and* subsequent promotions (if any).

But, as discussed earlier, under Fifth Circuit doctrine, a plaintiff can use existing position as evidence of initial placement. *See, e.g., James* v. *Stockham Valves & Fittings Co., supra* n.95, at 321 & 326-27. And, as the D.C. Circuit held in *Davis* v. *Califano*, supra, existing placement can also be used to establish promotion discrimination.

> (iii) "[D]r. Madden's analysis suffers from measurement problems with respect to her dependent variable. Dr. Madden chose . . . to rely on job grades for non-exempt employees and, for exempts, on whether the individual was an officer. But these measures were not shown to adequately differentiate between the skills and qualifications required for the myriad of exempt and nonexempt positions at the Bank. Dr. Stoikov's testimony established that such measures are far too crude to serve as skill level measures in regression analyses, and that Dr. Madden's analysis is accordingly invalid." (Defendant's Post-Trial Brief at 152).

The Bank itself used the grade structure as a hierarchy; that the grade contains a motley group of jobs (involving the use of different skills and qualifications) does not detract from this assertion. Since initial placement/promotion analysis is directed at the issue of position within the hierarchy, the use of grades here is acceptable. The Fifth Circuit used job classes to analyze initial placement in *James, supra;* we see no reason why we should not similarly do so in an initial placement and promotion context.

> (iv) With regard to the 1973-78 data, "[a]ll nonexempt employees in each job grade . . . were given a single Haypoint value, by virtue of a conversion factor, irrespective of the fact that the Bank assigns a range of Hay points for each nonexempt job grade and individual employees are assigned Hay points throughout that range (Barksdale testimony). . . . [T]his mismeasurement results in coefficients which are seriously biased in favor of a finding of discrimination." (Defendant's Post-Trial Brief at 153)

The quick answer is that assuming *arguendo* the validity of this assertion, it does not answer the results of Tables 3 and 4 — the grades analysis.

> (v) "Hay points at the Bank do not represent an ordinal index of internal skill differentiation (*i.e.*, a job valued at 800 Hay points is not worth twice as much as one valued at 400 Hay points). Econometric theory, as Dr. Stoikov testified, is violated when a nonordinal measure is used as a dependent variable in a regression analysis of this type." (Defendant's Post-Trial Brief at 154)

This argument is ambiguous, in part because the Bank appears to have meant "cardinal" when it used "ordinal." As worded in the Bank's brief, neither sentence makes sense. If Hay points are not an ordinal index, presumably the Bank means to assert that they are a cardinal one, in which case a job valued at 800 Hay points would indeed be worth twice as much as one valued at 400 Hay points. If econometric theory is violated when a nonordinal measure is used as a dependent variable, as the brief says Dr. Stoikov testified, then her own salary estimation regression is invalid.[187]

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[187]This is not meant in any way to criticize counsel because the transposition is easily made.

We shall assume then that the Bank intended to use the word "cardinal" where it used "ordinal." This does not, however, help the Bank here. Assuming *arguendo* that Hay points are an ordinal measure, and that to use ordinal measures as variables violates least squares, the study would not lose its probative effect. When discussing her "grades" analysis on direct examination, Dr. Madden made a point of mentioning that her "grades" dependent variable was an ordinal measure; she made no mention of how this could deleteriously affect any conclusions of the presence or absence of discriminatory placement. Implied by this is that she felt that such effect would be *de minimis* for the limited purpose of detecting the presence of discrimination. Keeping in mind the inevitable imperfection of social science modeling, discussed in the compensation case, and the role of the *prima facie* burden, it was up to the Bank to show not only that there was an imperfection in modeling and the magnitude of its impact of such imperfection on the plaintiffs' indicators of proxy. The Bank has done little more than point out the possible existence of a violation of the assumptions of least squares analysis.

> (vi) "[T]he evidence at trial plainly showed that Hay points are not evenly distributed among Bank employees. . . . And, Bank Vice President Thomas Barksdale testified that RNB Hay points range as high at 6,000; Dr. Madden assumed the range was 1,500 (Madden testimony).
>
> The effect of this lack of even distribution makes it inappropriate to use the actual value of such a variable in a linear regression model. Dr. Madden admitted at trial that this measurement problem existed; her only response was that it would take an expensive calculation to rectify the misspecification. Dr. Stoikov established, however, that this is simply not true; calculating a nonlinear functional form such as the natural logarithm of a variable is no more complicated than using the actual value in regression. Moreover, failure to use a nonlinear transformation of, rather than the

> actual value of, a variable which is not normally distributed across the population results in completely invalid estimates." (Defendant's Post-Trial Brief at 155).

This argument is puzzling. First, the argument seems to mistake the nature of a normal distribution. An "even distribution" of Hay points would consist of a line parallel to the horizontal axes; a normal distribution would not. Second, we do not understand that Dr. Stoikov testified — or that Dr. Madden conceded — that it is necessary that the dependent variable in a least squares analysis be normally distributed. *See, e.g.*, G. Maddala, *supra* n.49, at 75. While it is true that the sum of random effects embodied in the disturbance term must be distributed normally," in the 'bell curve' generally characteristic of the distribution of the sum of independent random effects,"[138] the Bank has not explained how this normality assumption requires that the dependent variable also be normally distributed.[139]

> (vii) "[A]ll exempt employees without Hay points are excluded from the analysis. . . . Dr. Madden failed to estimate separate placement regressions for exempt employees . . ." (Defendant's Post-Trial Brief at 155).

Whatever the validity of these criticisms, they are not directed at the nonexempt analysis.

> (viii) "Dr. Odell . . . demonstrated the invalid results that obtain from improperly measuring variables in actual value rather than in natural log form, and vice versa (DX556)." (Defendant's Post-Trial Brief at 155-56).

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[138]Fisher, *Multiple Regression in Legal Proceedings*, 80 Colum. L. Rev. 702, 708 (1980).

[139]Dr. Spaulding does appear to have testified that the dependent variable must be distributed normally. *See* Testimony of Dr. John Spaulding, Jr., at 1062. Even if he is correct, the Bank has not shown how much this violation of the assumptions of ordinary least squares affects the plaintiffs' modeling results.

To say the least, the Bank is unclear as to whether Dr. Madden used natural logarithms where she should actual value, or vice versa. In the grade and Hay point analysis, Dr. Madden used actual values; Dr. Odell did not testify or state in Defendant's Exhibit 556 that this was improper. *Cf.* section VII(C)(9), *supra.*

> (ix) "Dr. Madden's analysis fails because she has omitted important and quantifiable variables from her analysis that are effective human capital predictors of both pay and job placement." (Defendant's Post-Trial Brief at 156).

The Bank's omission bias argument is here quoted in its entirety. We reject it here for reasons analogous to those dictating its rejection in the compensation case.

> (x) "[Dr. Madden's] cohort analysis (PX 1309) fails as an estimation of the Bank's initial job placement practices." (Defendant's Post-Trial Brief at 156).

Whatever the validity of the cohort analysis, we do not rely on it here as to the black nonexempts case.

2. *Female Exempts.*

We find that the plaintiffs have not established a *prima facie* case as to female exempts: that is there is not enough evidence probative of discrimination in the initial placement or promotion of the females with exempt positons.[140] All of

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[140] The analysis in section VIII(A)(1)(vi), *supra,* only peripherally deals with discrimination in initial placement/promotion against *exempt* females: that discrimination experienced by a female holding a nonexempt job in not being initially placed into an exempt position, and discrimination experienced by a female holding a nonexempt job who should have been promoted into an exempt job, are both instances of discrimination against nonexempt females, not against exempt females. Moreover, as will be discussed, *infra* in the context of the Bank's analyses, the two questions studies at section VIII(A)(1)(vi), *supra,* are very narrow ones. Finally, the analysis in section VIII(A)(1)(vi), *supra,* only deals with one year.

the evidence marshalled in support of the *prima facie* case suffers from fatal flaws.

The plaintiffs rely, as they may under *James* v. *Stockham Valves, supra* n.95, at 321 & 326-27, on salary (among other things) as an indicator of placement on a hierarchy rather than on some more direct measure, such as Hay points. Moreover, they may rely on existing placement as probative of both initial placement discrimination and promotion discrimination. *See id.; Davis* v. *Califano, supra,* at 965; *Fisher* v. *Procter & Gamble Manufacturing Co., supra* n.99, at 543-44. Thus, the analytical construct of comparing present salaries after culling out the effects of salary discrimination and differential productivity is a legally cognizable way of gauging the presence or absence of initial placement and promotion discrimination.

The analyses we discussed more fully in sections VIII (A) (1) (i) and (A) (1) (iii), *supra,* are intended to so gauge this sort of salary difference. The analysis in section VIII (A) (1) (iv), *supra,* is intended to determine more directly the current placement of an employee. These three sets of analyses, including all of the relevant analyses outlined in the tables of section VII (B) (1), *supra,* all fail for females for the same reason: with those regressions which include a Hay point variable, the use of age (or age-based) proxies rather than actual general experience (and "uncorrected" by use of a sex-experience interaction term) causes the relative experience of females to be so overestimated that the results are likely to be biased to such an extent that those regressions cannot be used to establish a *prima facie* case. Our discussion in section VII (C) (5) (ii), *supra,* on age as proxy for general experience for females is applicable here in most respects, and so we will not go through that exercise again.

The cohort analysis in section VIII (A) (1) (iii), *supra,* suffers from a number of serious problems, perhaps none of which alone may not be enough to invalidate the analysis,

but which together will cause us to reject it. First, the number of females in the sample who were exempts when hired in 1969 was probably very small, probably something on the order of six, out of the 66 females in that cohort.[141] The results for females generated by the cohort analysis would be reflective primarily of the experience of the non-exempt females, and, for all we know, the six females we presume to have been hired as exempts may have left the Bank in 1972, and no women may have been promoted to exempt status thereafter: we would be following a cohort solely of nonexempt females.

Second, the widening pay differentials which the cohort analyses take to be probative may be attributed, as Dr. Stoikov herself stated, to either:

> (a) lower rates of promotion and/or pay increase for black men, white women, black women, and other minority females; (b) differential turnover rates by race and sex such that the most productive black men, white women, black women, and other minority women leave the bank while the most productive white men stay.

Plaintiffs' Exhibit 1308, at 6. Dr. Madden has not shown that explanation (b) does not account for the widening differential. Of the sample of 498 employees hired in 1969 and still at the Bank in 1970, only 91 remained in 1977. *See* Plaintiffs' Exhibit 1308 (Table 14); Testimony of Dr. Janice Madden at 60. The percentage of females and blacks fluctuated. *Id.* Merely because the mean years of education of the cohort as a whole did not change very much (the number fluctuates within a narrow band — 13.4 to 13.8 years — in the period 1970-77) does not mean that the mean

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[141] We make the assumption, favorable to the plaintiffs, that the percentage of females hired as exempts in 1969 is equal to the percentage of females hired as exempts in 1978 (approximately 8.8%). *See* Testimonial Exhibit 10 (Defendant's Exhibit 557).

years of the females or of blacks did not fluctuate or change in a systematic way.[142]

3. *Black Exempts.*

We rely on the occupational distribution discrimination implied by both the separate regression for exempts from 1973 on as well as other, pooled regressions under the section VIII(A)(1)(i) analysis, *supra*, to hold that a *prima facie* case of initial placements and promotion discrimination is established for black exempts from 1973 on. Through our discussion in that section, in section VII, *supra*, and in our discussion of the black and female nonexempts, section VIII(B)(1), *supra*, we have covered all the objections the Bank offers to the black exempts *prima facie* case. The only objection not earlier discussed — that the Blau/Madden analysis omitted exempt employees without Hay points from the analysis, "without a valid demonstration that the remaining employees constitute a representative sample of the population" — is not well taken. *See* Defendant's Post-Trial Brief at 158. The Bank made no showing as to the extent of the effect of missing Hay points on the plaintiffs' modeling results.

The evidence presented by the Bank as to both initial placement and promotion do not rebut any of the *prima facie* cases established.

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[142]Plaintiffs have not argued the applicability of the *Fisher* v. *Procter & Gamble Manufacturing Co.*, *supra* n.99, "compelling level" standard; to have done so would have been unjustified. As to female exempts, plaintiffs have not shown, nor attempted to argue, that there was a "compelling level" of underrepresentation in the higher echelons of the female exempt hierarchy. *Cf. id.* at 543-44. Moreover, the plaintiffs have not attempted to show that Republic is also an employer who has adopted a policy and practice of hiring in at lower level (exempt) jobs and promoting to upper level (exempt) jobs based upon training received and skills developed at the employer itself, other than in isolated programs such as the credit analyst training program. *Cf. id.* at 544. That is, Procter & Gamble created a pool for promotion trained by itself for the skill level requisite for promotion.

The work force comparisons, discussed in section VIII(A)(2)(i), *supra*, must be rejected for the reason therein discussed.[143] Especially serious is the crudity of the promotion definition: it does not take into account the fact that the overall effect of the promotion policies is determined not only by the number of promotions but by the size of each. *Cf. Smith* v. *Union Oil Co.*, 17 Empl. Prac. Dec. ¶ 8411 (N.D. Cal. 1977) (at discussion of first table in section E). The zero in the randomness range problem and overfragmentation problem are technical problems, which might possibly be remedied if this court, on its own, aggregated results and performed independent calculations. Given the number of calculations necessary and the general limitations of institutional competence, we decline to do so.

Sections VIII(A)(2)(ii)(a) and (b), *supra*, are only concerned with very narrow questions of initial placement and promotion. They, unlike the plaintiffs' analysis, do not look at overall patterns of initial placement and promotion. Even if otherwise valid — which issue we do not decide[144] — these studies can only show that only a certain narrow band of employees may not have been discriminated against in a certain manner.

Section VIII(A)(2)(ii)(a), *supra*, is concerned with whether one who comes to the Bank has a probability of being hired into professional job families untainted by group-status consideration. By definition, this question is not relevant to any claims of initial placement discrimination of those hired into the exempt category, even as to blacks or females who would have been placed higher within the exempt category had they been white males. The question is also not relevant to any claims by those in the non-

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[143]We do not reach the question of whether the Bank's technique of determining skill-refined availabilities is proper.

[144]*See, e.g.*, section VIII(A)(1)(vi, *supra*). We also do not reach the issue of whether the Bank has justified (in legal terms) the use of predictors included in the defendant's regressions. *See* section VI(E), *supra*.

exempt category who claim not that they have been discriminated against in being placed in the nonexempt category rather than the exempt, but that they should have been placed higher within the nonexempt category.

The study described in section VIII(A)(2)(ii)(b), *supra*, is concerned with the influence of sex or race on the probability of being promoted from a nonprofessional into a professional position. The study is limited to only one year (1978), leaving unclear the answer to this question in other years. And again, the promotional opportunity examined is one which concerns not exempts at all, or even most nonexempts, but only those in the nonexempt category who had a realistic chance of crossing the dividing line between exempts and nonexempts. The analysis does not examine the opportunities available to employees of various group statuses to cross all the dividing lines on the hierarchy at Republic. In short, nonexempt-to-exempt is not the only promotional possibility.

The analysis described in section VIII(A)(2)(iii), *supra*, must be rejected because of the sample size problems and the lack of proof for the relevance of the particular geographic markets chosen.[145]

C. *Summary.*

The plaintiffs have failed to establish a *prima facie* case of initial placement or promotion discrimination as to female exempts for any year.

The plaintiffs have established *prima facie* cases of initial placement and promotion discrimination as to black and female nonexempts for all years and black exempts from 1973. These *prima facie* cases are not successfully rebutted by the Bank by its own modeling or by its challenges to the reliability of the plaintiffs' modeling. A Phase I finding of liability therefore exists for (i) blacks and females

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[145] We do not reach the question of whether the Bank's technique for determining skill-refined availabilities is proper.

employed at the Bank in nonexempt positions at any point in the class period; and (ii) blacks employed at the Bank in exempt positions at any time in the interval from January 1, 1973, to the end of the class period.

IX. *Hiring*

The parties' proof on the question of discrimination in hiring consists of a series of comparisons between the Bank's workforce or its hires during the class period and appropriate segments of the general labor market. To understand these analyses we must first explore the techniques of statistical inference, which must be used extensively by the court in evaluating the results of the statistical studies. Only then may we turn to the studies themselves, looking at the data, the law, and the results obtained when the law is applied to the data.

At the outset, the relationship of the hiring analysis to other parts of the case, principally the placement/promotion analysis, must be made clear. The scope of the hiring case is commensurate with the scope of the applicant subclasses, *see* section I, *supra:* only those rejected altogether by the Bank may complain of "hiring" discrimination. Those who *were* hired, but who were placed in an inappropriate position as a result of discrimination, complain instead of initial placement discrimination, discussed in section VIII, *supra.*

A. *Statistical Inference.*

The starting point for statistical proof of hiring discrimination in a Title VII class action is a simple comparison requiring no statistical sophistication: does the proportion of a racial or sexual group in the relevant segment of the labor force exceed the proportion which that group represents among those hired by the defendant for a particular job or jobs? While the focus remains on deliberate discrimination, such a "community composition comparison approach," *see* Shoben, *Probing the Discriminatory Effects*

of Employee Selection Procedures with Disparate Impact Analysis Under Title VII, 56 Tex. L. Rev. 1, 8-19 (1977), provides an important insight into the existence of such discrimination:

> Statistics showing racial or ethnic imbalance are probative in a case such as this one only because such imbalance is often a telltale sign of purposeful discrimination; absent explanation, it is ordinarily to be expected that nondiscriminatory hiring practices will in time result in a work force more or less representative of racial or ethnic composition of the population of the community from which employees are hired. Evidence of longlasting and gross disparity between the composition of a work force and that of the general population thus may be significant even though Section 703(j) [42 U.S.C. § 2000e-2(j)] makes clear that Title VII imposes no requirement that a work force mirror the general population.

International Brotherhood of Teamsters v. *United States*, 431 U.S. 324, 340 n.20 (1977).

A disparity between the availability of racial or sexual groups and the proportions of those groups among a defendant's hires does not, however, always result from discrimination. Like any series of uncertain events, the hiring of a number of employees may through random fluctuation result in more or fewer than the expected number of hires of members of a specific group. Just as the flipping of 100 coins may result in more or fewer than 50 "heads," the hiring of 100 employees may result in a number of black or female hires larger or smaller than that predicted by the proportion of blacks or females in the relevant labor pool. Baldus and Cole have identified "four main sources of random instabiilty and variability that can influence the outcomes of a selection process:" the possibility that the sample of the defendant's hires chosen for study (*e.g.*, those hired during a given year) may be unrepresentative; the possibility of error in the measurement of individuals'

characteristics and qualifications (by the employer or by the statistical analyst); the use of a random selection process, as in jury selection; and "random shocks from unknown or unknowable factors operating in the selection process," such as the effect of subjective race- and sex-neutral preferences among small numbers of applicants. D. Baldus & J. Cole, *supra* n.55, § 9.11, at 298-99. It is the purpose of statistical testing to offer insight into the likelihood that a given disparity was produced by such random factors rather than by systematic bias.

The mathematical underpinning for such statistical tests lies in certain elementary concepts of probability. The first of these is known as the "product rule." That rule states that the probability of occurrence of a given series of events, each of which is independent of the others, may be obtained by multiplying the probabilities that each event will occur. *See* G. Wadsworth & J. Bryan, *Applications of Probability and Random Variables* 11-12 (2d ed. 1974). Thus the probability of two consecutive "heads" tosses of a coin is the probability that the first toss will be "heads" (½) multiplied by the probability that the second toss will be "heads" (½), that is, ¼. Similarly, the probability that a card drawn at random from a deck of cards will be the ace of hearts equals the probability that the card will be a heart (¼) multiplied by the probability that the card will be an ace (1/13), that is, 1/52.

The second such concept, while traveling under the formidable name of combinatorial theory, is equally simple. Combinatorial theory is used to calculate the number of different combinations or sequences which may result when a series of events (in our case individual hiring decisions) takes place, each of which may take place in more than one way (*e.g.*, hiring of a female, hiring of a male). Referring to our earlier example, the probability of two consecutive "heads" is ½ times ½, or ¼, because there is only one sequence in which that event may occur. Suppose, however, that we were interested in the probability that two tosses might produce one "heads" and one "tails." Applying the product rule, we would multiply the probability that one coin would be "heads" (½) by the probability that the

other coin would be "tails" (½), and would obtain ¼. This time, however, there would be *two* combinations or sequences in which this event could occur: the first coin might be "heads" and the second "tails," or the first "tails" and the second "heads." Multiplying the probability obtained from application of the product rule (¼) by the number of sequences in which that probability may arise (2), we obtain a probability of one "heads" and one "tails" of ½.

Where the numbers of events are small, the number of possible sequences can be determined by common sense. When dealing with larger groups, however, a common-sense listing of possible sequences becomes extremely laborious. Thus while it is intuitive that there are two sequences in which a "one-heads-one-tails" result may occur when two coins are tossed, it is by no means intuitive that there are 252 different sequences of five heads and five tails which may occur in a group of 10 tosses. A mathematical formula is available to calculate the number of different sequences in which a given number of events of a particular type (*e.g.*, female hires) may occur in a given number of events (*e.g.*, total hires).[146]

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[146]The general combinatorial formula for the number of sequences of r events of a particular type which may occur in a group of n total events is:

$$C(n,r) = \frac{n!}{r!\,(n-r)!}$$

that is,

$$C(n,r) = \frac{n \times (n-1) \times (n-2) \times \ldots \times 1}{r \times (r-1) \times (r-2) \times \ldots \times 1 \times (n-r) \times (n-r-1) \times (n-r-2) \times \ldots \times 1.}$$

G. Wadsworth & J. Bryan, *supra*, at 33. Thus, for the second example given in the text,

$$C(10,5 = \frac{10 \times 9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{5 \times 4 \times 3 \times 2 \times 1 \times 5 \times 4 \times 3 \times 2 \times 1} = 252.$$

These numbers are known as "binomial coefficients."

These two concepts conjoin to enable the statistician in a Title VII case to aid the court in determining whether a particular hiring outcome is attributable to chance rather than to discrimination. Using these concepts, the statistician can calculate the probability that a given outcome, *i.e.*, a given number of hires of members of a racial or sexual group out of a given total number of hires, would occur by operation of random factors in the case of a nondiscriminatory employer. If a result which appears to suggest discrimination might frequently occur by chance even in the absence of discrimination, that appearance cannot be relied upon to prove that discrimination actually occurred.

A concrete example may be helpful. Suppose that in a given labor market blacks represent 25% of those qualified for a particular task. Suppose further that an employer has hired four persons during the relevant time period to fill jobs involving that task, and that none of those hired were black. What is the probability that a nondiscriminatory employer, choosing his employees without respect to race from among those qualified, would have failed to choose any blacks for the four positions? What is the distribution of probabilities for hiring of blacks, *i.e.*, what is the likelihood that a particular number of blacks, between zero and four, would be hired by such an employer?

Applying the product rule, the probability of hiring nonblacks in *all four* positions is the product of the probabilities of hiring a nonblack into *each* such position. Since nonblacks represent 75% of the qualified population, the probability that any one position would be filled with a nonblack is .75, and the probability that all four such positions will be so filled is .75 times .75 times .75 times .75, or .3164. Similar probabilities for the hiring of three nonblacks (and one black), two nonblacks (and two blacks), and so forth, can be computed using the product rule and the

number of sequences as outlined above.[147] This process of using the product rule and combinatorial theory results in a set of probabilities known as a "binomial distribution."

Thus we observe that, while on the average a nondiscriminatory employer faced with a 25% availability of blacks would hire one black in filling four positions, there is a 31.64% probability that in such a situation no blacks would be hired. Here a facially discriminatory outcome — no black hires despite 25% availability — is revealed by the statistical test to be an outcome which appears frequently even in the absence of discrimination, and consequently an outcome which cannot be relied upon to support an inference of discrimination.

In evaluating the likelihood that a given hiring result might occur in the absence of discrimination, it is helpful to look not merely at the probability that that particular result might occur, but at the probability that a result *at least as extreme* as the observed result might occur. Thus in evaluating a hiring outcome in which, despite a 50% female availability, only two of 10 hires were female, we may wish to examine the probability that zero, one, *or* two hires might occur if only chance were operating.[148] To make such an

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[147]

Number of Nonblacks	Positions				Number of Sequences	Probability
	A	B	C	D		
4	.75	.75	.75	.75	1	.3164
3	.75	.75	.75	.25	4	.4219
2	.75	.75	.25	.25	6	.2109
1	.75	.25	.25	.25	4	.0469
0	.25	.25	.25	.25	1	.0039
						1.0000

[148]This is known as a "one-tailed" test. Another approach, designated a "two-tailed" test, would be to examine the probability that zero, one, two, eight, nine, or ten females would be hired by chance. This approach would take into account the possibility that extreme results *in favor* of females may sometimes occur by chance just as extreme results disfavoring females may occur by chance. There is no clear convention in favor of the use of one- or two-tailed tests in employment discrimination litigation. D. Baldus & J. Cole, *supra* n. 55 § 9.221, at 307-308. *See* section VI(D)(2), *supra*.

examination, we would add the probability of zero female hires occurring, the probability of one female hire occurring, and the probability of two female hires occurring. The resulting probability is designated a "significance level." If the probability that an apparently discriminatory result will occur by chance is, for example, 5%, it is customary to state that the result is "statistically significant at the .05 level."[149]

A test of statistical significance does not determine the probability that any particular result in fact occurred by chance.[150] Such an evaluation, depending upon an evaluation of all the facts and circumstances, many of which are not susceptible of objective measurement, is a task for the court. While evidence of statistically significant disparities can aid the court in that task, it cannot be used to state with certainty the probability that discrimination has actually occurred. *Cf.* section V(D). *supra* (role of anecdotal evidence).

This being the case, what level of statistical significance should be required by the court before the inference may be

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[149]*See* n.58, *supra.*

[150]This proposition is stated by Baldus and Cole as follows:

> The statistical test can say nothing about causation. The test does, however, provide relevant evidence on which an inference about causation can properly be based. For, if the observed result would occur by chance only 1 time out of 100 in a random system, the occurrence of the result observed in the case before the court would have to be considered a rare event (unless the system were not random), thereby suggesting chance was not the cause. And if bias is the only other plausible explanation for the result, one's belief that the defendant intentionally discriminated will be strengthened.
>
> Second, even if such a result would happen only 1 out of 100 times in a purely random system, a statistical test cannot measure the likelihood that a particular outcome was or was not a chance result. The test of significance states the likelihood of seeing evidence of the type observed over the long run, if the system were effectively blind to color or sex. It simply does not follow that the chances are 99 out of 100 that the result in the instant case was not a chance result, let alone intentionally caused.

D. Baldus & J. Cole, *supra* n.55, § 9.42, at 320-21.

allowed to arise that discrimination has occurred? It has become a convention in social science to accept as statistically significant values which have a probability of occurring by chance 5% of the time or less, *i.e.*, values which are statistically significant at the .05 level. *E.g.*, D. Baldus & J. Cole, *supra* n.55, § 9.221, at 308 n.36; N. Nie, C. Hull, J. Jenkins, K. Steinbrenner, & D. Bent, *Statistical Package for the Social Sciences* 222 (2d ed. 1975).[151] Statistical significance at the .05 level is consistent with the "two or three standard deviation" approach employed by the Supreme Court in *Castaneda* v. *Partida*, 430 U.S. 482, 496 n.17 (1977), *see* D. Baldus & J. Cole, *supra* n.55, § 9.221, at 308 n.35a, and has been widely used by the courts. *Id.* at 308 n.36; *Beyond the* Prima Facie *Case*, *supra* n.57, at 400 & n.58. *See* Hallock, *The Numbers Game — The Use and Misuse of Statistics in Civil Rights Litigation*, 23 Vill. L. Rev. 5, 13 (1977-78) (recommending use of 5% level in employment discrimination cases). While the courts may properly rely on the level of significance employed in other fields, the judgment as to what is or is not statistically significant "is a legal determination properly made by the court and not by an expert." D. Baldus & J. Cole, *supra* n.55, § 9.221, at 308.

Regardless of the level of significance chosen by the court, it must be remembered that statistical significance is not an "either/or" proposition. As the probability of an event's occurrence in a nondiscriminatory environment decreases, the significance of the results increases in a continuous fashion. Hence it is no surprise that the courts have recognized that a result falling just short of the chosen level of significance is nearly as important as a result just surpassing the chosen level. *See Reynolds* v. *Sheet Metal Workers Local* 102, 22 Empl. Prac. Dec. ¶ 30,739, at 14,814 (D.D.C. 1980); *Pennsylvania* v. *Rizzo*, 466 F.Supp. 1219, 1231 (E.D. Pa. 1979); *Watkins* v. *Scott Paper Co.*, 6 Empl. Prac. Dec. ¶ 8,912, at 5880 (S.D. Ala. 1973); *aff'd on this point*, 530 F.2d 1159, 1187 n.40 (5th Cir.) (".1 significance level *might* be accept-

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[151].01 is another commonly used level of significance.

able;" emphasis in original), *cert. denied*, 429 U.S. 861 (1976); *cf. United States* v. *Georgia Power Co.*, 474 F.2d 906, 915 & n.11 (5th Cir. 1973) (requirement of 29 C.F.R. § 1607.5(c)(1) that employment tests be shown to be job-related at the .05 level of significance "must be read as setting a desirable goal and not a prerequisite"). Indeed, it has been suggested that the best approach is to evaluate statistical significance on a sliding scale, giving great weight to highly significant results and little weight to slightly significant results, rather than to establish any cutoff level of significance. D. Baldus & J. Cole, *supra* n.55 § 9.221, at 308 n.36.

When dealing with small numbers, statisticians prefer to use the binomial distribution in calculating statistical significance levels, in as much as that distribution enables a precise calculation of the probabilities that extreme results could occur due to random fluctuation.[152] As the sample size (in our case the number of hires in a relevant period) increases, the mathematical calculations necessary to determine significance levels using the binomial distribution become extremely onerous even with the aid of digital computers.[153]

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[152]Technically, the most precise measure of the probability of extreme results is given by a distribution known as the hypergeometric distribution. This distribution takes into account the fact that as a black or female is hired, the availability pool for blacks or females becomes smaller for future hires. Where, as here, the availability pool is much larger than the total number of hires, the binomial distribution provides an excellent approximation for the hypergeometric distribution. *See generally* G. Wadsworth & J. Bryan, *supra*, at 55-59.

[153]Consider, for example, the calculations necessary to determine whether, given a female availability of 50%, 250 female hires out of a total of 1,000 hires is statistically significant. For each number between zero and 250 (and for each number between 750 and 1,000 if a two-tailed test is used), a binomial coefficient must be computed using the formula given in n.146, *supra*. Each such calculation will require 1,998 multiplications and one division. The binomial coefficients thus obtained must then be multiplied by .5 raised to the 1000th power, in a manner analogous to that used in n.147, *supra*, to obtain the probability of a given number of female hires. The 251 probabilities thus obtained (or 502 if a two-tailed test is used) must then be summed to obtain the statistical significance level. Thus the calculation of a single significance level, involving sample sizes not unlike those which are often encountered in Title VII class actions, requires no less than 1,004,501 arithmetic steps.

In such cases, use is made of the fact that for large sample sizes the binomial distribution may be accurately approximated by using a distribution known as the "normal distribution."[154] *See* G. Wadsworth & J. Bryan, *supra*, at 132-33. The normal distribution has the advantages that statistical significance levels may be determined using widely published tables, *see, e.g.*, R. Burington, *Handbook of Mathematical Tables and Formulas* 257-60 (2d ed. 1946), and a simple transformation of the data. This transformation consists of subtracting the number of hires from a particular group expected in the absence of distrimination from the number of hires from that group actually observed, and dividing that result by the standard deviation.[155] The result of this mathematical manipulation is an important and useful statistic known as the Z-statistic or Z-score.[156]

The vale in Z-scores lies in the fact that they may be easily correlated with statistical significance levels. Thus, for example, if the court adopts a .05 level of significance using a two-tailed test, reference to tables reveals that such a level corresponds to a Z-score of -1.96.[157] R. Burington, *supra*, at 258. That is, results which deviate from the average by 1.96 or more standard deviations may be expected 5%

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[154]The normal distribution is the "bell curve" familiar in a variety of contexts.

[155]The standard deviation is a mathematical measure of the degree to which deviations from the expected value are likely to occur. *See Hazelwood School District* v. *United States*, *supra* n.99, at 308-09 n.14; *Castaneda* v. *Partida*, *supra*, at 496-97 n.17. For the binomial distribution and its normal approximation, the standard deviation is given by the formula SD = NPQ, where N = the number of hires, P = the availability proportion, and Q = 1 — P. *See EEOC* v. *United Virginia Bank*, 615 F.2d 147, 151 (4th Cir. 1980); *Quigley* v. *Braniff Airways, Inc.*, *supra* n.10, at 81 n.7; G. Wadsworth & J. Bryan, *supra*, at 132; R. Burington, *supra*, at 256; Comment, *Statistics and Title VII Proof:* Prima Facie *Case and Rebuttal*, 15 Hous. L. Rev. 1030, 1051 n.192 (1978).

[156]A formula for the calculation of Z-scores is given in n.162, *infra*.

[157]A negative sign indicates fewer hires from a given racial or sexual group than expected in the absence of discrimination. A positive sign indicates more hires than expected.

of the time when dealing with the normal distribution. *See Rich* v. *Martin Marietta Corp.*, 467 F.Supp. 587, 601 (D. Colo. 1979); *Caulfield* v. *Board of Education*, 21 Empl. Prac. Dec. ¶ 30,389, at 13,195 (E.D.N.Y. 1979). The Z-scores for other levels of significance may be determined by reference to the tables.[158] The use of Z-scores aids in evaluation of statistical results and provides a convenient benchmark for comparison with the *Castaneda* "two or three standard deviation" test.[159]

Finally, a concrete example may be in order. Returning to our earlier example in which no females were hired in four positions despite a 25% female availability, and calculating the Z-score using the formula contained in n.162, *infra*, we obtain a Z-score of -1.155. This corresponds to a significance level of .2482. R. Burington, *supra*, at 258. The fact that this significance level is somewhat different from the actual significance level of .3203, computed using the more exact binomial distribution,[160] demonstrates that the normal distribution is not a good approximation for the binomial distribution where the numbers are small. For larger groups, however, the use of Z-scores based on the normal distribution will provide an accurate approximation of statistical significance levels.

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[158]For example, the .01 level of significance corresponds to a Z-score of -2.57. R. Burington, *supra*, at 259.

[159]The use of Z-scores is, however, not without pitfalls. The relationship between Z-scores and statistical significance levels is nonlinear; that is, while a Z-score of -1.96 corresponds to the .05 level of significance, a Z-score twice as large does not correspond to the .025 level. Nor does a Z-score twice as large indicate a result "twice as significant" in a more subjective sense. The Z-score cannot be used meaningfully without reference to the Z-scores corresponding to standard levels of significance.

[160]Since we are using a two-tailed test, the actual significance level is the probability of zero female hires (.3164) plus the probability of four female hires (.0039). *See* n.147, *supra*.

B. *Plaintiffs' Case: The Data.*

Plaintiffs' hiring case consisted primarily of the testimony and report of Dr. Paula England.[161] Dr. England's studies of hiring at the Bank consisted of a series of statistical comparisons, relating the proportion of blacks and females in the overall Bank population and in various subgroups of that population to similar proportions in various segments of the society. One additional study compared the proportions of females hired into exempt positions by the Bank with a number of availability measures.

Dr. England did not attempt to identify the most appropriate geographical labor market with which to compare the Bank's hiring performance. Instead, she chose to present data for two such labor markets, the Dallas/Fort Worth Standard Metropolitan Statistical Area ("SMSA") and the City of Dallas. These areas were chosen based on the assumption that the Bank recruits its work force in part from the City of Dallas and in part from outlying areas of the Dallas/Fort Worth SMSA. Dr. England did not attempt to identify the respective proportions of the Bank's work force contributed by each of these areas, or to ascertain whether the Bank draws from other areas as well. SMSA and city work force area were derived from reports from the Texas Employment Commission.

Dr. England compared the proportion of blacks in the overall Bank work force with the availability of blacks in the City and SMSA. She also compared proportions of blacks and females in selected relatively high paid groups at the Bank. These groups consisted of employees designated as "officials and managers" by the Bank in its annual EEO1

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[161]Dr. England is a post-doctoral research fellow at Duke University, on leave from her position as Assistant Professor of Sociology and Political Economy at the University of Texas at Dallas. She holds a Ph.D. in sociology from the University of Chicago. Among her research interests are women in the labor force and society, the sociology of leisure, and the application of statistics to substantive problems.

reports, employees designated as "professionals," and employees designated as "exempt." These groups were compared to the two geographical labor forces and to the proportions of blacks and females in the overall Bank work force. The latter comparison was based on the assumption that the Bank's overall work force represents a potential availability pool from which it could draw employees for these elite groups. Data regarding the Bank's work force were derived from EEO1 reports and from other data supplied by the Bank.

The results of these tests are set forth in the margin.[162] The tables show an underutilization of blacks or females,

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[162]A comparison of the proportion of blacks in the Bank work work force with availability of blacks in the Dallas/Fort Worth SMSA and City of Dallas labor forces yielded the following results:

	BLACKS		
Year	Work Force	Z (SMSA)	Z (City)
1969	.076	—6.30	—14.45
1970	.070	—7.25	—15.48
1972	.089	—4.95	—13.88
1973	.112	—2.07	—12.15
1974	.143	+2.26	— 8.94
1975	.143	+2.36	— 9.33
1976	.138	+1.60	— 9.80
1977	.139	+1.73	— 9.57
1978	.162	+5.00	— 6.86

A similar study for females was not performed.

A similar comparison of "officials and managers" produced the following results:

	Blacks				Females			
Year	Work Force	Z (SMSA)	Z (City)	Z (RNB)	Work Force	Z (SMSA)	Z (City)	Z (RNB)
1969	.003	—6.40	— 9.05	—4.73	.003	—13.57	—14.57	—20.12
1970	.003	—6.71	— 9.50	—4.73	.028	—13.32	—14.38	—18.44
1972	.002	—7.73	—10.90	—6.29	.085	—12.80	—14.05	—20.31
1973	.002	—8.09	—11.40	—7.51	.080	—13.62	—14.92	—21.57
1974	.006	—8.25	—11.79	—8.88	.118	—12.57	—13.97	—21.78
1975	.011	—8.33	—12.14	—9.02	.128	—12.76	—14.24	—22.24
1976	.014	—8.23	—12.14	—8.72	.151	—11.79	—13.31	—21.47
1977	.017	—7.95	—11.87	—8.49	.176	—10.47	—11.99	—20.48
1978	.000	—4.20	— 5.88	—4.84	.008	— 8.58	— 9.22	—13.04

statistically significant at the .05 level using a two-tailed test, in cases where the Z-score is negative and exceeds 1.96

A similar comparison of "professional" personnel produced the following results:

	Blacks				Females			
Year	Work Force	Z (SMSA)	Z (City)	Z (RNB)	Work Force	Z (SMSA)	Z (City)	Z (RNB)
1969	.000	—0.85	— 1.19	—0.64	.200	—0.86	—1.01	— 1.73
1970	.000	—1.01	— 1.41	—0.73	.143	—1.33	—1.49	— 2.10
1972	.015	—3.89	— 5.77	—3.01	.201	—4.44	—5.18	— 8.71
1973	.005	—5.10	— 7.27	—4.73	.320	—1.94	—2.88	— 7.18
1974	.019	—4.68	— 7.04	—5.11	.317	—2.10	—3.07	— 8.01
1975	.035	—4.17	— 6.79	—4.66	.355	—1.02	—2.05	— 7.08
1976	.052	—3.29	— 5.97	—3.64	.385	—0.09	—1.09	— 5.99
1977	.039	—3.80	— 6.34	—4.16	.362	—0.77	—1.75	— 6.80
1978	.033	—7.44	—11.98	—8.07	.305	—4.49	—6.24	—15.32

A similar comparison of exempt employees produced the following results:

	Blacks				Females			
Year	Work Force	Z (SMSA)	Z (City)	Z (RNB)	Work Force	Z (SMSA)	Z (City)	Z (RNB)
1973	.007	—9.71	—13.94	—10.14	.149	—13.22	—14.89	—24.03
1974	.017	—9.51	—14.19	—10.46	.180	—12.28	—14.10	—24.12
1975	.022	—9.25	—14.11	—10 24	.205	—11.01	—12.89	—22.68
1976	.020	—9.04	—13.68	— 9.99	.235	— 8.84	—10.66	—20.84
1977	.026	—8.66	—13.46	—10.43	.265	— 7.21	— 9.08	—20.19
1978	.029	—8.47	—13.36	—10.75	.271	— 6.91	— 8.80	—20.27

The data in these tables were derived from the data given in Tables 1-7 of Dr. England's report (Plaintiffs' Exhibit 507). Z-scores in these and succeeding tables were calculated using the formula $Z = \left(\frac{p-P}{\sqrt{VPQ/N}} \right)$, where:

P = the proportion of blacks or females in the availability group under comparison;

Q = 1-P;

p = the proportion of blacks or females in the Bank group under comparison; and

N = the number of employees in the Bank group under comparison.

See pp. 5-6 of Dr. England's report. This formula is equivalent to that noted by this court in *Quigley* v. *Braniff Airways, Inc., supra* n.10, at 81 n.7. *See* n. 155, *supra.*

in magnitude. The results show such a disparity in all cases except for the comparison of blacks at the Bank with blacks in the SMSA for 1974-78, the comparison of black "professionals" at the Bank with availability figures for 1969-70, and the comparison of female "professionals" at the Bank with availability figures for a variety of years.

Dr. England also performed comparisons between the Bank's subgroups and similar subgroups at other banks. These comparisons did not proceed on the assumption that the Bank actually recruits in large measure from other banks, but rather on the assumption that hiring of blacks and females by other banks in a given proportion indicates that similar results could have been achieved at Republic. Data for all banks filing EEO reports were obtained from EEOC reports. Comparisons were also performed using data from banks studied by the Council on Economic Priorities. *See* T. Simcich, *Shortchanged: Update* 29, 32, 44, and 47 (1976). These data pertain to the three largest banks, by deposit, in Atlanta, Chicago, Detroit, New York, Philadelphia, and Washington, D.C. Comparisons with CEP banks were performed using proportions of "minorities" rather than proportions of blacks, since the CEP data was so structured. The results of these studies are presented in the margin.[163] Most

[163] A comparison of the proportions of black or female "officials and managers" and "professionals" at the Bank with similar proportions in all banks filing EEO1 reports is shown below:

	Blacks					
	Officials & Managers			Professionals		
Year	RNB	RNB Banks	Difference	RNB	EEO1 Banks	Difference
1969	.003	.009	—.006	.000	.019	—.019
1973	.002	.022	—.020*	.005	.039	—.034*
1975	.011	.029	—.018*	.035	.052	—.017
	Females					
1969	.003	.121	—.118*	.200	.210	—.010
1973	.080	.191	—.111*	.320	.262	+.058
1975	.128	.247	—.119*	.355	.308	+.047

* denotes statistically significant result at the .05 level.

The data in these tables appear in Tables 11 and 12 of Dr. England's report.

such results show disparities for blacks and females; some are statistically significant at the .05 level.

The foregoing comparisons involve so-called "stock" figures, *i.e.*, figures relating to the number of employees at the Bank in a given category, rather than the number hired in any given year. Dr. England also performed one series of comparisons involving "flow" figures: she compared the proportion of females hired into exempt positions by the Bank to labor force proportions, Bank work force proportions, and the proportions of females receiving bachelor's degrees. These results are shown in the margin.[164] Disparities for females

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A similar comparison between the proportions of minority and female "officials and managers" and professional, technical, and sales" personnel at the Bank and at banks in the CEP study is shown below:

	Minorities					
	Officials & Managers			Prof., Tech., & Sales		
Year	RNB	CEP Banks	Difference	RNB	CEP Banks	Difference
1971-72	.007	.048	—.041*	.039	.093	—.054*
1975	.028	.099	—.071*	.083	.168	—.085*
	Females					
1971-72	.085	.160	—.075*	.217	.223	—.006
1975	.128	.262	—.134*	.294	.348	—.105*

* denotes statistically significant result at the .05 level.

The data in these tables appear in Table 9 of Dr. England's report. 1971-72 figures represent 1971 data for the CEP study, 1972 data for the Bank.

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[164] This comparison relates females as a proportion of those hired into exempt positions by the Bank to proportions in the SMSA and City labor forces, to the proportion of females among all Bank employees, and the proportion of females receiving bachelors' degrees:

Year	Hires	Z (SMSA)	Z (City)	Z (RNB)	Z (Degrees Conferred)
1971	.141	—4.86	—5.46	— 7.64	—5.71
1972	.157	—5.34	—6.01	— 9.48	—6.34
1973	.171	—5.06	—5.77	— 9.28	—6.11
1974	.166	—5.49	—6.24	—10.38	—6.69
1975	.190	—3.72	—4.31	— 7.37	—4.84
1976	.253	—2.70	—3.34	— 6.61	—3.95
1977	.317	—1.60	—2.33	— 6.18	—3.08
1978	.344	—0.71	—1.23	— 3.92	—2.05

which were statistically significant at the .05 level were achieved in all but three such comparisons.

Finally, Dr. England compared the proportion of minorities hired by the Bank and the proportion of minorities interviewed by the Bank with the proportion of minorities who applied for positions at the Bank. The results of this study are shown in the margin.[165] These results show racial disparities which are generally significant at the .05 level.

C. *Plaintiffs' Case: The Legal Standards.*

We begin with the now universally recognized proposition that a plaintiff in a Title VII class action may establish a *prima facie* case of discrimination in hiring by showing a gross disparity between the proportion of minorities or females in the relevant labor market and the corresponding proportion in an employer's workforce or among its new hires.[166] In *International Brotherhood of Teamsters* v. *United States*, *supra*, at 340 n.20, Justice Stewart referred to the

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The data in this table were derived from the data given in Table 8 of Dr. England's report, using the formula given in n.162, *supra*.

[165]This comparison relates minorities as a proportion of those interviewed and minorities as a proportion of those hired to minorities as a proportion of all Bank applicants:

Year	Applicants	Interviews	Z Interviews	Hires	Z Hires
1974	.389	.296	— 5.19	.314	—1.90
1975	.386	.287	—12.09	.247	—6.52
1976	.453	.320	—14.54	.271	—8.55
1977	.404	.221	—20.39	.325	—4.12

The data in this table were derived from the data given in Table 13 of Dr. England's report, using the formula given in n.162, *supra*.

[166]This comparison technically measures an aggregate of hiring discrimination and initial placement discrimination. That is, an unexplained disparity between the racial or sexual makeup of those in (or hired into) job X and those qualified for job X may be due to one or both of two causes:

(1) Qualified applicants for job X are being turned away due to their race or sex; or

probity of "[e]vidence of longlasting and gross disparity between the composition of a work force and that of the general population" in the search for purposeful discrimination. In *Hazelwood School District* v. *United States*, *supra* n.99, at 307-08, the Court extended this principle, stating that "[w]here gross statistical disparities can be shown, they alone may in a proper case constitute prima facie proof of a pattern or practice of discrimination."

The degree to which the availability figures with which an employer's record is compared must reflect relevant educational and occupational qualifications necessarily varies on a case-by-case basis. In *Teamsters*, the Court noted that "evidence showing that the figures for the general population might not accurately reflect the pool of qualified job applicants would also be relevant." 431 U.S. at 340 n.20. In *Hazelwood*, this standard was applied in a concrete manner: the Court held that the defendant school district's work force should be compared not with general population figures but with the qualified public school teacher population. 433 U.S. at 308. *See Mayor of Philadelphia* v. *Educational Equality League*, 415 U.S. 605, 620-21 (1974) (where city charter limited membership on panel to highest ranking officers of designated organizations, relevant population was group of highest ranking officers); *Chance* v. *Board of Examiners*, 330 F.Supp. 203 (S.D.N.Y. 1971), *aff'd*, 458 F.2d 1167 (2d Cir.

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(2) Qualified applicants for job X are being placed in job Y (for which they are overqualified) due to their race or sex.

Case (1) represents hiring discrimination; case (2) represents initial placement discrimination. While with this comparison it is impossible for *any given job or group of jobs* to disentangle the effects of these two forms of discrimination, an aggregate disparity over all jobs must reflect hiring discrimination, since initial placement discrimination merely shifts new hires from a proper to an improper placement. When separate hiring analyses are performed for exempts and for nonexempts, some vestige of the entanglement remains in the exempt hiring analyses, since initial placement discrimination may shift some new hires out of the exempt category into the nonexempts. When viewed against the totality of hiring in the exempt category, however, this effect is likely to be small.

(1972) (pool for hiring as high school principals must meet teacher qualifications). *But see Spurlock* v. *United Airlines, Inc.*, 475 F.2d 216, 218 (10th Cir. 1972) (*prima facie* case of discrimination in hiring of airline pilots by showing of raw disparity). Similarly, in *Hester v. Southern Railway Co.*, 497 F.2d 1374, 1379 n.6 (5th Cir. 1974, the court held a comparison between incumbents of positions requiring a typing ability of 60 words per minute and general population figures to be of "questionable value," and indicated that a "more significant comparison" would be that between the defendant's hires and the proportion of the population who could meet the typing requirement.[107]

The refinement of availability figures based upon qualifications may be viewed as a spectrum, ranging from the use

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[107] In *Fisher* v. *Procter & Gamble Manufacturing Co.*, *supra* n.99, at 543-44, the Fifth Circuit held that in some cases a "compelling level of racial underrepresentation in a sizeable workforce" may establish a *prima facie* case without adjustment for qualifications. In so holding, the Court relied on several pre-*Hazelwood* cases. *See Jones* v. *Tri-County Electric Cooperative, Inc.*, 512 F.2d 1, 2 (5th Cir. 1975); *United States* v. *Hayes International Corp.*, 456 F.2d 112, 120 (5th Cir. 1972); *Parham* v. *Southwestern Bell Telephone Co.*, 433 F.2d 421, 426 (8th Cir. 1970). *See also Louis* v. *Pennsylvania Industrial Development Authority*, 371 F.Supp. 877, 884-85 (E.D. Pa.), *aff'd mem.*, 505 F.2d 730 (3d Cir. 1974), *cert. denied*, 420 U.S. 993 (1975). The court emphasized the defendant's "entry level hiring policy" as a "distinctive circumstance" justifying the use of raw population statistics:

> When a company adopts a policy and practice of hiring in at low level unskilled jobs and promoting to upper-level positions based upon training received and skills developed at the plant itself, it cannot convincingly challenge the prima facie showing under the *Hazelwood* "qualifications" dicta.

613 F.2d at 544. The circumstances which led the court in *Fisher* to accept general workforce comparisons are absent here. With the exception of the credit analyst program, the Bank has no formal training programs. For the credit analyst program, the Bank insists only on those credentials it believes are necessary to perform at the entry level position of credit analyst and to satisfactorily complete the training program; it does not require that entering credit analysts possess the skills required of a commercial loan officer.

of undifferentiated general population figures at one end to the pool of applicants meeting an employer's challenged job requirements at the other. While the cases teach that general population statistics are not appropriate for comparisons for jobs whose skills are not possessed and cannot easily be acquired by the general public,[165] to require a plaintiff's proof to meet the opposite extreme would effectively eviscerate the "business purpose" requirement first set forth in *Griggs* v. *Duke Power Co.*, 401 U.S. 424 (1971). *Griggs* requires that an employer demonstrate the job-relatedness of any employment criterion having a disparate impact on minorities; a facile transformation of such employment criteria into "job qualifications" which must be met by a plaintiff's availability pool would render this requirement a dead letter. While some refinement of raw figures is essential in some cases to render the resulting statistics meaningful, plaintiffs must be given the opportunity to mount a genuine challenge to job criteria with disparate impact which they believe to lack job-relatedness.

A standard of proof accommodating these competing interests is that set forth in dictum by this court in *Davis* v. *City of Dallas*, 487 F.Supp. 389 (N.D. Tex. 1980). In that case, the court noted the necessity of refining availability esti-

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[165] More precisely, the test should be whether required skills which cannot be easily acquired are evenly distributed across racial or sexual lines in the proffered availability pool. If, for example, a given skill is possessed by sexual or racial groups in the same proportion that those groups represent in the availability pool, use of proportions in the pool will provide an accurate proxy for proportions of those qualified. Thus if half of all speakers of French are female, general population statistics (in which roughly half of all members are female) may be used in a case involving the hiring of French translators, notwithstanding the fact that only a small proportion of the population can speak French and the fact that knowledge of French is not easily acquired. Of course, proof that a given skill is evenly distributed may be more difficult to come by than proof of the proportions of sexes or races which possess that skill. This may explain the reliance of the courts on a requirement that the skill be easily acquired or commonly possessed in the population before general population figures may be used.

mates to encompass only the available minority population within the geographical area relevant to the employer's hiring. 487 F.Supp. at 392 n.1. It then went on to state:

> Some refinement as to skill level may also be appropriate in cases where the jobs in question require a readily quantifiable skill whose validity is not open to serious question. Just as it makes no sense to judge a Maine employer by the minority population of Mississippi, it may make no sense to judge discrimination in the hiring of textbook writers against an availability pool including the illiterate.

Id. See D. Baldus & J. Cole, *supra* n.55, § 6.21; *cf. Thompson* v. *McDonnell Douglas Corp.*, 416 F.Supp. 972, 981 (E.D. Mo. 1976), *aff'd*, 552 F.2d 220 (8th Cir. 1977) ("at least minimal qualifications"); *Dobbins* v. *Local* 212, *IBEW*, 292 F.Supp. 413, 436 (S.D. Ohio 1968) ("basic skill in the particular trade involved"). This standard ensures that the plaintiff's statistics will have at least minimal probative value, while resolving doubts concerning job qualifications in favor of the plaintiff at the *prima facie* stage.[169]

The appropriate degree of refinement for labor market statistics may also depend on the availability of statistical data with which comparisons are to be made. While the most relevant labor market for employees who operate a particular type of sophisticated and complicated machinery might be the proportion of the general work force who are trained in the operation of that machinery, *Hester*, *supra*,

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[169]Such treatment is appropriate due to the differing legal effect of presuming a job requirement valid or invalid at the *prima facie* stage. If the plaintiff's statistics are required to overreflect job qualifications, it is possible that her *prima facie* case will thereby fail and hence that discrimination will go undetected. Undercorrection for job qualifications, on the other hand, merely casts upon the defendant the burden of rebutting the plaintiff's statistics by showing that an apparently discriminatory result is in reality explainable through the use of job-related qualification levels. *See* Shoben, *supra*, at 15-16.

practical limitations on the availability of such data might require that comparisons instead be made with the proportion qualified to operate similar machinery or possessing skills similar to those required to operate the machinery. Likewise, where necessary, the number of persons qualified for a particular task may be proxied by the number of persons actually employed in that task throughout the labor force. *See* Shoben, *supra*, at 16-17.

Additional problems are presented where, as here, a variety of jobs, requiring widely differing levels and types of skills, are aggregated for statistical analysis. In such a case, the plaintiff must present availability figures refined to include those who possess the skills typically required by jobs within the mix. To require an overall skill level comparable to that required only for isolated high-level positions would significantly underestimate the availability for typical jobs of groups whose skills are average or less than average. Conversely, to reduce all job qualifications to the lowest common denominator would test an employer's hiring against a pool which includes a large number of persons unqualified for most positions.

Just as availability figures must be refined to account for differential qualification levels, availability statistics must also reflect the appropriate geographical labor market. At the *prima facie* stage, this requirement is governed by a standard analogous to that applied to qualification levels: the plaintiff may not ignore geographical constraints on the employer's hiring where those constraints are not open to serious question. Although the geographical market chosen by the plaintiff for its *prima facie* showing may not coincide precisely with that ultimately deemed most relevant once a defendant brings forth evidence of its actual hiring patterns and the reasonableness of those patterns, plaintiffs, just as in the case of skill levels, must be afforded considerable latitude. Thus a showing of gross disparities using a geographical labor market not manifestly unrelated to the defendant's hiring needs and practices will suffice at least to shift

to the defendant the burden of demonstrating that some other labor market is more appropriate.

Finally, it must be remembered that the burden of demonstrating that a *prima facie* showing constitutes a meaningful statistical comparison is upon the plaintiff. *Miller* v. *Weber*, 577 F.2d 75, 77 (8th Cir. 1978); *James* v. *Wallace*, 533 F.2d 963, 967 (5th Cir. 1976). *But see* Shoben, *supra*, at 19 (advocating contrary rule). While, as indicated, this burden does not require a showing of exact correspondence between the geographical, educational, and occupational characteristics of the plaintiff's proffered pool and the defendant's hiring requirements, it does require that the plaintiff produce statistics sufficiently meaningful to support the inference that discrimination has occurred. Once this standard has been met, the burden shifts to the defendant to show that such an inference of discrimination is unwarranted by virtue of flaws in the plaintiff's statistical proof, or to dispel the inference of discrimination by showing that observed disparities are in fact produced by the application of neutral and job-related standards.[170] *See generally*, *Johnson* v. *Uncle Ben's*,

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[170]Throughout this opinion, the term "*prima facie* case" has been used to denote the showing a plaintiff must make in order to survive a motion for judgment under Fed. R. Civ. P. 41(b) and to require the defendant to present defensive evidence. *See Cooper* v. *University of Texas*, *supra* n.58, at 197. Other courts have given the term a more expansive definition, referring to the quantum of proof, both at the close of plaintiff's case and afterwards, necessary to shift to the defendant the burden of demonstrating that observed disparities are the product of the application of job-related criteria. *E.g.*, *EEOC* v. *Datapoint Corp.*, 570 F.2d 1264, 1269-70 (5th Cir. 1978); *Croker* v. *Boeing Co.*, 437 F.Supp. 1138, 1183 (E.D. Pa. 1977). Whether rebuttal taking the form of an attack on the validity of the plaintiff's statistical approach is characterized as a defense to an already established *prima facie* case, or as a factor preventing a *prima facie* case from ever coming to existence, is a matter of semantics. Regardless of how such proof is characterized, "[t]he plaintiff's statistics need only be shown incompetent and unreliable to defeat them." *Dickerson* v. *United States Steel Corp.*, 472 F.Supp. 1304, 1308 (E.D. Pa. 1978), *vacated on other grounds sub nom. Worthy* v. *United States Steel Corp.*, 616 F.2d 698 (3rd Cir. 1980). *Accord*, *Cooper*, *supra* n. 58, at 197. If this is done, the burden of showing job-relatedness never arises.

Inc., No. 78-1437, slip op. at 422-23 & 425 (5th Cir. Oct. 17, 1980).

D. *Plaintiffs' Case: Applying the Law to the Data.*

Examination of the plaintiffs' *prima facie* showing must begin with a consideration of the extent to which the plaintiffs' proffered availability pools reflect appropriate skill levels. Since many different jobs, with diverse skill requirements, have been grouped together for analysis, it is necessary, as previously discussed, to consider the skill requirements typical of the mix. Because, however, the typical skill levels required for exempt and nonexempt positions at the Bank differ markedly, because the plaintiffs' analyses have in some cases been separately performed for exempt and nonexempt categories, and because the class has been subdivided along exempt/nonexempt lines, it is appropriate to consider skill requirements separately for these two groups.

The mix of skills required for nonexempt jobs at the Bank is not significantly different from the mix of skills possessed in the general labor force or easily acquired by those in the labor force. The Bank's nonexempt job families include computer technicians, tellers, accounting clerks, general clerks, clerk/typists, secretaries, business machine operators, and security guards. *See* n.185, *infra*. While some of these job families (*e.g.*, computer technician) undoubtedly require specialized skills not possessed by the work force at large, such job families account for only a small fraction of the total nonexempt work force.[171] The largest proportion of nonexempt jobs at the Bank is in lower-level clerical positions.[172] Skills for these positions are commonly possessed

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[171]For example, computer technicians accounted for only 2% of the Bank's nonexempt hires in 1970-78. *See* n.187, *infra*.

[172]66% of 1970-78 nonexempt hires were in the lower two levels of "general clerk" positions, and an additional 6% were in the lower two levels of "clerk/typist" positions. *See* n.187, *infra*.

or easily acquired. Taking into account the mix of low-skill and moderate-skill jobs in the nonexempt category, the court is convinced that comparison of nonexempt hiring with labor force availability figures is sufficiently meaningful to meet the plaintiffs' burden at the *prima facie* stage.[173]

The Bank places considerable reliance on the case of *EEOC* v. *United Virginia Bank*, *supra* n.155, in asserting that general work force comparisons are inadequate for nonexempt hiring. In that case, the Fourth Circuit stated:

> The EEOC, however, rigidly continues to argue that all the black local labor force is qualified for the office and clerical positions at UVB. This is simply not true. Tellers must be able to deal with the public, handle and account for money, and operate adding machines, typewriters and other office machines. The district court found that the entire percentage of black people in the local labor force would not provide an appropriate statistical group for comparison with UVB black employees. Since this determination was a factual one, it will not be disturbed unless clearly erroneous.

615 F.2d at 149-50 (footnote omitted). Insofar as the *United Virginia Bank* holding relies on factual findings as to the qualifications of the local labor force and the characteristics of UVB jobs, it is of course not controlling in this case. To the extent, however, that the court holds as a matter of law that general labor force figures do not reflect the range of skills (many of which are easily acquired)

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[173]This analysis is fully consistent with *Hester* v. *Southern Railway Co.*, *supra*. In *Hester*, the only jobs under consideration required a specific level of typing ability, and hence availability figures reflecting that qualification were required. While the Bank's nonexempt jobs include jobs requiring equal or greater typing or other skill than those in *Hester*, the skills typically required for nonexempt jobs at the Bank are not as specific as those required in *Hester*.

required in clerical positions in a bank, it reaches a result this court must respectfully decline to follow. Such a holding would set up a standard of refinement at the *prima facie* stage neither warranted under the cases nor consistent with availability of statistical data.[174]

The Bank's pool of exempt jobs is significantly different from its nonexempt jobs. The exempt jobs include such job family groups as officials and managers, accountants, securities analysts and economists, marketing personnel, commercial loan analysts, commercial loan representatives, data processing personnel, trust representatives, consumer loan representatives, internal services personnel, operative services personnel, and petroleum engineers. *See* n.185, *infra*. The skill mix required for these jobs is quite different from that possessed by the general labor force or easily acquired by it. Several job families, accounting for almost ¼ of the exempt hires in 1970-78, require skill levels comparable or superior to those possessed by individuals with college degrees.[175] Another 25% of exempt hires involves commercial loan analysts and representatives. Extensive testimony of bank officials and other experts in the banking industry convinces the court that a college degree in a business-related field is a requirement for these positions in most cases. *See* section IX(G), *infra*. In sum, the plaintiffs have failed to meet their burden of showing that their proffered compari-

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[174]The *UVB* approach also would frustrate suits in which, as here, hiring practices involving a variety of different jobs are simultaneously challenged. The decision is thus more in tune with the Fourth Circuit's restrictive approach to "across-the-board" suits than with the Fifth Circuit's liberal attitude. *See* section II(A), *supra*.

[175]*E.g.*, officials and managers, accountants, securities analysts and economists, and petroleum engineers. This is not to say, of course, that a college degree is necessarily required for these positions, but merely that the range of skills typically required for these positions is roughly comparable to that possessed by those in the labor force with a college degree or greater education.

son between exempt hires and general work force availability figures produces meaningful statistical results.[176]

We turn now to an application of these principles to the plaintiffs' hiring data. Dr. England did not perform a separate comparison for black nonexempt hiring.[177] Nevertheless, the data she presents for all black hiring and for black exempt hiring, *see* n.162, *supra*, together with numbers of black employees from the Bank's EEO1 reports (Plaintiffs' Exhibits 518-523) and numbers of black exempt employees from Plaintiffs' Exhibit 670, enables the court to disaggregate exempt and nonexempt hiring and to calculate Z-scores for nonexempt hiring. The results of these computations appear in the margin.[178] The data show a statistically significant *overutilization* of blacks in nonexempt positions when SMSA figures are used. The question thus becomes whether the City of Dallas is a relevant labor market on which the plaintiffs may predicate a *prima facie* showing as to black nonexempt hiring.

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[176]Nor have the plaintiffs justified the use of the Bank's overall work force as an availability pool from which exempt employees may be drawn.

[177]No data were presented for female nonexempt hiring inasmuch as the subclass of female nonexempt applicants was decertified. *See* section I. *supra*.

[178]The following are results of a comparison of the proportions of blacks among the Bank's nonexempt work force with proportions of blacks in the Dallas/Fort Worth SMSA and City of Dallas:

Year	Total Non-exempts	Black Non-exempts	Ratio	Difference from SMSA	Z (SMSA)	Difference from City	Z (City)
1973	1381	231	.167	+.040	+ 4.49	—.055	—4.89
1974	1382	303	.219	+.092	+10.30	—.003	—0.25
1975	1547	324	.209	+.082	+ 9.74	—.013	—1.19
1976	1559	309	.198	+.071	+ 8.44	—.024	—2.26
1977	1482	299	.202	+.075	+ 8.64	—.020	—1.88
1978	1431	341	.238	+.111	+12.61	+.016	+1.48

A comparison with the overall Bank work force, *cf.* nn.162, 164, *supra*, is not shown, since the assumption on which such a comparison would be based *(i.e.*, that the overall work force is a potential availability pool) is meaningless in the case of nonexempt hiring.

The Bank argues that availability data must reflect the actual geographical area from which it draws its employees. Regardless of the validity of this approach in comparing and contrasting paintiffs' and defendant's hiring showings, *see* section IX(F)(2), *infra*, this argument loses sight of the standard applicable to a *prima facie* showing. Given the nature of the nonexempt jobs at the Bank, the court cannot state that comparisons with City of Dallas figures are so bereft of probative value as to deprive them of meaning. Most nonexempt applications are obtained through "walk-ins" at the Bank's offices in the central city. The City of Dallas is an area from which the Bank can and, to a large extent, does recruit its nonexempt work force. Hence comparisons with City of Dallas figures are sufficient to raise an inference of discrimination warranting rebuttal by the defendant.

The Z-statistics for the City of Dallas comparison show varying levels of significance for the years 1973-78. The only clearly significant underutilization is that for 1973.[179] Since data for pre-1973 exempt hiring was not presented, thus preventing the court from disaggregating nonexempt hiring from total hiring for 1969-72, the results for 1969-72 must be extrapolated. Since the figures for total black hiring, *see* n.162, *supra*, show a sharp dropoff in significance levels between 1969-73 and 1974-78, consistent with the disparity between the 1973 and 1974-78 figures for black nonexempt hiring, we may infer that results for 1969-72, if available, would show significant underutilization as in 1973. That is, the significant 1973 result, together with the pattern of disparities shown by the total black hiring figures, raises the inference that the discrimination present in 1973 existed in 1969-72 as well. Hence a *prima facie* case has been made out for those members of the subclass of black nonexempt applicants who applied in 1969-73.

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[179]The Z-score for 1976 (-2.26), corresponding to a significance level of .024, R. Burington, *supra*, at 259, is hard to interpret. Falling as it does, however, among nonsignificant figures and near a year (1978) in which overutilization was present, it is not likely that that figure represents an isolated year in which discrimination was present.

The Bank argues that the comparisons performed by Dr. England, constituting as they do "stock" comparison, *i.e.*, compairsons involving the Bank's labor force at a given time, rather than "flow" comparisons involving those hired during a given period, do not adequately segregate the effects of pre-Act discrimination from discrimination occurring after Title VII became effective. While without question flow statistics are a superior measure of hiring discrimination during a given time period, *Movement for Opportunity & Equality* v. *General Motors Corp.*, 622 F.2d 1235, 1244-45 (7th Cir. 1980) [hereinafter *Movement* v. *GMC*]; D. Baldus & J. Cole, *supra* n.55, § 3.112[2]; Gwartney, Asher, Haworth, & Haworth, *supra* n.40, at 651-53, it does not follow that flow statistics are required to establish a *prima facie* case, *Movement* v *GMC*, *supra*, at 1244-45. The evidence indicates that there is very high turnover in nonexempt positions in the Bank. Hence the effects of pre-Act hiring discrimination "frozen" into the Bank's work force or "stock" statistics are likely to be small.

Black applicants for exempt positions do not fare as well as nonexempt applicants. As previously stated, comparisons of exempt hiring with general labor force figures, as in n.162, *supra*, are virtually meaningless, and cannot be relied upon to establish a *prima facie* case. The only other statistical evidence relevant to black exempt hiring consists of comparisons between the Bank and other banks, *see* n.163, *supra*, and between black hires and interviews at the Bank and black applicant flow, *see* n.165, *supra*. Neither comparison establishes a *prima facie* case.

Dr. England's comparison between black officials and managers and professionals at the Bank and at banks filing EEO1 reports is flawed in several respects. First, data are presented for only three of the years covered by the class certification period. While this fact would not preclude gap-filling inferences of discrimination if the results for the years presented reflected a consistent discriminatory pattern, the results do not reflect such a pattern. No sig-

nificance is revealed for 1969. While results for 1973 are significant, results for 1975 show significance for officials and managers but not for professionals.[180] Since Dr. England does not state the exact levels of significance but only whether or not the results attain the .05 level of significance, the court is unable to determine whether the results are highly significant or only marginally significant. More fundamentally, there has been no showing that the banks to which Republic is compared are comparable in size and structure to Republic.[181] Hence the use of the availability of blacks in the work force of EEO1 banks as a proxy for the availability of qualified blacks for Republic is a questionable assumption indeed.

Use of work force data from banks in the CEP study presents similar problems. For CEP banks, data for only two years is presented. Since the CEP study used racial minority data rather than data limited to blacks, the comparisons are made using minority proportions. The "officials and managers" and "professional, technical, and sales" groupings do not together correspond exactly to the "exempt" category. As with EEO1 data, the sample of CEP banks includes many banks in branch banking states with work force compositions different from Republic. Finally,

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[180]Aggregation of these two groups by the court is not possible due to the fact that Dr. England computed significance levels for this study using the binomial distribution rather than the more easily computed Z-scores based on the normal distribution. Nor would an aggregation of "officials and managers" and Professionals" correspond precisely to the Bank's exempt workforce.

[181]EEOl reports must be filed by all employers, including banks, having 100 or more employees. 29 C.F.R. § 1602.7. Hence Republic, which had between 1600 and 2400 employees during the relevant period and is one of the nation's largest banks, is substantially larger than most banks filing EEOl reports. The EEOl data will include data from banks engaged primarily in retail lending and from banks in branch banking states. Each of these factors means that the skill mix at EEOl banks may be substantially different from that required by the job mix at Republic.

the average minority proportion in the SMSAs from which the CEP banks draw is higher than that in the Dallas/Fort Worth SMSA.[182]

Balanced against these drawbacks, the plaintiffs argue that the exempt work forces of other banks represent extremely conservative estimates of availability of blacks for high-level banking positions, since other banks are likely to have discriminated against blacks as well. This may well be so. Indeed, the degree to which this factor favors the Bank may outweigh the drawbacks to use of interbank comparisons described above. Yet the presence of uncertainty and inaccuracy in each direction does not render the comparisons more reliable. In the absence of any evidence tending to show the cumulative effect of these factors, the court cannot state with any degree of reliability whether or not interbank comparisons are statistically meaningful. This being the case, the plaintiffs have failed to meet their burden to justify the use of such statistics.

The plaintiffs finally rely on a comparison between the proportions of minorities among those interviewed and hired and the corresponding proportion among applicants. These data fail to distinguish between those seeking exempt and nonexempt jobs, fail to account for requisite skill levels, do not differentiate between blacks and other minorities, and are based on incomplete applicant flow data. Hence they do not constitute an adequate *prima facie* showing.

Although comparison of female exempt hiring with general labor force figures is not appropriate, the plaintiffs supplied alternative comparisons which are adequate to establish a *prima facie* case as to that group. These data,

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[182]While the plaintiffs argue that the relevant comparison is with city figures, which show more minorities than the CEP SMSAs, the CEP itself regarded SMSA data as "the most accurate available base for labor force data" for the banks it studied. T. Simcich, *supra*, at 169. This conclusion coincides with testimony that Republic recruits its exempt work force from a labor market as broad or broader than the Dallas/Fort Worth SMSA.

given in n.164, *supra*, are the results of a comparison between female exempt hires at the Bank (flow statistics) and the proportion of females among those receiving bachelors' degrees from American universities. Statistically significant disparities appear for each year from 1971 through 1978. The unanimity of the results also suggests that a *prima facie* case exists as to the years 1969 and 1970. While the Bank correctly points out that many of its exempt positions require skills not possessed by a typical liberal arts graduate, the skills possessed on the average by those with college degrees are sufficiently commensurate with the skill mix of exempt jobs at the Bank to render comparisons meaningful.

In summary, the plaintiffs have established a *prima facie* case of hiring discrimination as to female applicants for exempt positions and as to black applicants for nonexempt positions prior to 1974. The court turns now to an examination of the extent to which the Bank has successfully rebutted this *prima facie* showing.

E. *The Bank's Case: The Data.*

The Bank's hiring case consisted primarily of the testimony and reports of Dr. Judith Stoikov.[183] Like Dr. England, Dr. Stoikov performed a series of statistical comparisons to detect the presence or absence of discrimination in the Bank's hiring. Dr. Stoikov's methodology, however, differed from that of Dr. England in several important respects. First, Dr. Stoikov performed her analyses using hiring data segmented into so-called "job families," repre-

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[183]Defendant also relies on statistical studies performed by Dr. Odell. Although Dr. Odell's methodology differs from Dr. Stoikov's in several important respects, his results are largely duplicative of Dr. Stoikov's. For this reason, and because Dr. Stoikov's analysis is in certain respects more comprehensive than Dr. Odell's, Dr. Stoikov's results will be referred to exclusively throughout this and succeeding sections. Dr. Odell's results have been briefly discussed in connection with the placement/promotion analysis. *See* section VIII(A)(2)(iii), *supra*.

senting groups of jobs at the Bank with similar content, compensation, and opportunity for advancement, while Dr. England's tests were performed using the entire Bank population or large, broadly-defined subgroups of that population. Second Dr. Stoikov used availability estimates consisting of weighted averages reflecting the various educational levels and types of experience sought by the Bank when hiring for particular positions.[184] Her availability estimates were also weighted geographically to reflect the various geographical areas from which the Bank draws its employees.

The grouping of the Bank's 3500 job titles into job families was performed not by Dr. Stoikov, but by an EEO task force at the Bank. This task force consisted of four Bank officers at differing levels in the Bank's personnel administration, together with the Bank's lead counsel in this lawsuit. The task force used as its starting point the draft Compliance Manual of the Office of Federal Contract Compliance Programs. That manual identifies four factors to be used in assigning job titles to job groups: functions, pay, advancement, and sufficient number of incumbents to support meaningful statistical analyses. Apart from broad guidelines, such as the requirement that individual job families not include employees from different one-digit EEOC job categories (*e.g.*, officials and managers, professionals, etc.), the manual does not provide detailed criteria for classifying particular jobs. This function was performed by the task force.

The results of this initial classification were evaluated and approved by the Bank's attorneys: Questionnaires (sic) were submitted to employees, and the job family classifications audited on the basis of the responses to the questionnaires (sic). The audited results were

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[184] Those hired within one year of receiving a degree were presumed to have been hired on the basis of that degree, while others were presumed to have been hired on the basis of their prior work experience.

submitted to Dr. Stoikov for her approval. Dr. Stoikov used five criteria in assessing the job family classifications: Are the geographical dimensions of the labor market identical for all jobs within a three-digit job family? Is the level of skill required homogeneous for jobs within a three-digit job family? Is the range of salaries smaller than across three-digit job families? Are opportunities for career advancement similar for all jobs classified within the same job family? Are there sufficiently large numbers of people employed in each job family to support meaningful statistical analysis? After combination of some three-digit job families to obtain sufficient numbers of observations to support meaningful statistical analysis,[183]

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[183] The job families as grouped by Dr. Stoikov are as follows:

Group	*Description*
EXEMPT:	
Officials and Managers:	
A	Executives; Department Managers; Staff Division Managers
B	Accounting Managers
C	Securities Managers; Marketing Managers
D	Commercial Loan Managers
E	Data Processing Managers
F	Trust Managers
G	Internal Services Managers-Legal
H	Operating Services Managers
Professionals Accountants:	
I	Accountant-Junior
J	Accounting Analyst
K	Accountant-Senior; Accounting Supervisor
Professionals-Securities Analysts and Economists:	
L	Stock Analyst; Bond Analyst; Economic Analyst; International Trader
Professionals-Marketing:	
M	Marketing Analyst
N	Technical Representative
O	Retail Representative-Junior
P	Retail/Corporate Representative-Senior

Professionals-Commercial Loan Analysts:

Q	Statement Analyst
R	Credit Analyst
S	Unit Administrator
T	Analytical Section Administrator

Professionals-Commercial Loan Representatives:

U	Loan Representative; Loan Officer-B
V	Loan Officer-A; Loan Officer (Assistant Vice President)
W	Loan Vice President-Officer B; Loan Vice President-Officer A/Manager B

Professionals-Data Processing:

X	Computer Analyst; Programmer
Y	Programmer-Analyst; Programmer-Analyst-Senior
Z	Lead Programmer-Analyst; Senior Project Manager; Manager-System Section

Professionals-Trust Representatives:

AA	Trust Administrator-Assistant; Trust Administrator
BB	Trust Administrator-Senior; Trust Administrator-Supervisor

Professionals-Consumer Loan Representatives:

CC	Loan Administrator

Professionals-Internal Services:

DD	Personnel
EE	Security
FF	Corporate Planning
GG	Facilities
HH	Public Relations
II	Systems & Methods Planner

Professionals-Operative Services:

JJ	Operating Services Administrator
KK	Operating Services Administrator-Senior
LL	Operating Services Administrator-Supervisor

Professionals-Engineers:

MM	Petroleum Engineer

Computer Technicians:

NN	Junior Computer Operator
OO	Computer Operator; Senior Computer Operator; Lead Computer Operator
PP	Production Coordinator

Office and Clerical-Teller:

QQ	Checking/Savings Teller; Note Teller; Check Order/Hold Debit Teller; Collateral Teller; Currency Control Teller; Foreign Exchange Teller
RR	Lead Teller Senior Teller; Lead Receiving Teller; New Accounts Representative; Senior New Accounts Representative; Oil Loan Teller; Senior Oil Loan Teller; Security Teller; Tax-RR-Customer Note Teller

Office and Clerical-Accounting Clerk:

SS	Accounting Clerk-Junior; Accounting Clerk-Senior; Lead Accounting Clerk
TT	Accounting Clerk-Supervisor

Office and Clerical-General Clerk:

UU	General Clerk-Junior; General Clerk-Senior
VV	Lead General Clerk; General Clerk-Supervisor

Office and Clerical-Clerk/Typist:

WW	Clerk/Typist-Junior
XX	Clerk/Typist-Senior
YY	Lead Clerk/Typist; Clerk/Typist-Supervisor

Office and Clerical-Secretary:

ZZ	Secretary-Junior; Secretary-Senior; Administrative Secretary; Executive Secretary

Office and Clerical-Business Machine Operator:

AAA	Keypunch Operator-Junior; Supervisor-Keypunch Operator

Service Workers-Security Guards:

BBB	Security Guard; Console Operator; Senior Security Guard; Supervisor-Security Guards

This table is derived from Defendant's Exhibit 1.

Dr. Stoikov found the Bank's job family classifications to be "valid and useful constructs for analyzing equal employment practices."

For each job family, Dr. Stoikov identified the proportion of employees who were hired based on their prior work experience and the proportion who were hired based upon their educational achievement. Job families were matched with Census Bureau occupational categories and levels and types of education, and a weighted average availability was

computed based upon the proportions of hires bearing each such qualification and the availabilities of blacks or females possessing qualification. These results were further weighted for each family by the proportion of hires selected from each of three labor markets: the Dallas/Fort Worth SMSA; the State of Texas; and the entire United States. Occupational availabilities were taken from the 1974 Current Population Survey for 1970-74 comparisons, and from the 1978 CPS for 1975-78 comparisons. Educational availability data were taken from 1973-74 data for Earned Degrees Conferred supplied by the Department of Health, Education and Welfare for 1970-74 comparisons, and 1975-76 data for 1975-78 comparisons.

The weighted average availabilities obtained were then compared for each job family with the proportion of females or blacks hired into that job family. Data were aggregated into two time periods (1970-74 and 1975-78) to obtain sufficient numbers for meaningful statistical analysis. For each such comparison, a "randomness range" was computed. This range represents the range of the number of female or black hires which could be expected to occur, in the absence of discrimination, 95% of the time.[186] An actual number of hires outside the randomness range thus indicates an underutilization or overutilization of blacks or females statistically significant at the 5% level using a two-tailed test.

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[186]The randomness range was computed using the binomial distribution except where the number of hires equalled or exceeded thirty and the availability equalled or exceeded 5%. In those cases, the normal distribution was used.

The results of these statistical tests are shown in the margin.[187] The results show statistically significant under-

[187]This table shows the availability, randomness range, and number of hires for 1970-74:

Job Family Group	Total Hires	Blacks			Females		
		Avail.	Randomness Range	No. Hires	Avail.	Randomness Range	No. Hires
EXEMPT:							
A	1	.0098	0-1	0	.1724	0-1	0
B	4	.0116	0-1	0	.2526	0-4	0
C	4	.0098	0-1	0	.1994	0-3	0
D	14	.0131	0-2	0	.2299	0-7	0
E	2	.0285	0-2	0	.0736	0-2	0
F	2	.0131	0-1	0	.2299	0-2	0
G	1	.0234	0-1	0	.0537	0-1	1
H	3	.0171	0-2	0	.1924	0-3	0
I	59	.0405	0-11	1	.1979	6-18	14
J	18	.0128	0-2	0	.2360	0-9	5
K	8	.0099	0-2	0	.2565	0-5	1
L	44	.0205	0-4	0	.1510	2-11	4
M	3	.0367	0-2	0	.1522	0-3	1
N	17	.0492	0-4	0	.2892	1-10	15#
O	4	.0267	0-2	0	.3378	0-4	1
P	21	.0176	0-3	0	.3122	2-12	3
Q	3	.0304	0-2	0	.1844	0-3	2
R	107	.0405	0-13	3	.1416	8-22	8*
S	3	.0301	0-2	0	.1477	0-3	0
T	1	.0033	0-1	0	.2006	0-1	1
U	7	.0175	0-2	0	.1985	0-4	2
V	9	.0056	0-2	0	.1843	0-5	0
W	5	.0098	0-1	0	.2305	0-4	0
X	15	.0016	0-1	0	.1565	0-6	3
Y	63	.0078	0-5	1	.1437	4-15	8
Z	3	.0278	0-2	0	.0649	0-2	0
AA	37	.0352	0-4	0	.1701	2-11	7
BB	6	.0019	0-1	0	.1767	0-4	0
CC	5	.0262	0-2	0	.1860	0-4	0
DD	6	.0190	0-2	0	.1983	0-4	2
EE	3	.0244	0-2	0	.0100	0-1	0
FF	0						
GG	1	.0210	0-1	0	.2052	0-1	0
HH	2	.0072	0-1	0	.3396	0-2	0
II	6	.0248	0-2	0	.0686	0-3	0

Job Family Group	Total Hires	Blacks			Females		
		Avail.	Randomness Range	No. Hires	Avail.	Randomness Range	No. Hires
JJ	44	.0322	0-5	3	.2490	5-17	5*
KK	6	.0260	0-2	0	.2210	0-4	0
LL	2	.0044	0-1	0	.1898	0-2	0
MM	3	.0000	0-3	0	.0147	0-1	0
NONEXEMPT:							
NN	2	.0093	0-2	1	.6768	0-2	0
OO	38	.0180	0-3	3	.2263	4-14	5
PP	2	.0111	0-1	1	.1562	0-2	0
QQ	65	.0380	0-10	2	.9518	58-65	53*
RR	11	.0380	0-3	1	.9518	8-11	10
SS	215	.0285	1-11	24#	.8530	173-194	202#
TT	2	.0279	0-2	0	.8463	0-2	0
UU	1880	.1065	174-226	417#	.7074	1291-1369	1487#
VV	31	.0469	0-5	0	.8526	23-30	3*
WW	121	.0762	4-15	27#	.9660	113-121	120
XX	42	.0765	0-8	3	.9637	38-43	41
YY	1	.0740	0-1	0	.9481	0-1	1
ZZ	261	.0317	3-14	4	.9817	252-260	261#
AAA	104	.0564	1-10	31#	.9216	90-101	101
BBB	35	.0322	0-4	8#	.0071	0-2	4#

* denotes underutilization statistically significant at the .05 level.
# denotes overutilization statistically significant at the .05 level.

The data in this table were taken from Tables 2 and 3 of Dr. Stoikov's "testimonial exhibits" (Defendant's Exhibit 557).

The following table shows similar results for 1975-78:

Job Family Group	Total Hires	Blacks			Females		
		Avail.	Randomness Range	No. Hires	Avail.	Randomness Range	No. Hires
EXEMPT:							
A	3	.0219	0-2	0	.2369	0-3	0
B	5	.0196	0-2	0	.3338	0-4	0
C	2	.0202	0-1	0	.3332	0-2	0
D	4	.0269	0-2	0	.3110	0-4	0
E	2	.0194	0-1	0	.1043	0-2	0
F	0						
G	1	.0145	0-1	0	.0746	0-1	0
H	1	.0274	0-1	0	.2640	0-1	0
I	51	.0390	0-6	5	.2677	7-20	15

Job Family Group	Total Hires	Blacks			Females		
		Avail.	Randomness Range	No. Hires	Avail.	Randomness Range	No. Hires
J	24	.0115	0-2	0	.3111	3-12	9
K	12	.0080	0-2	0	.3298	0-8	3
L	19	.0239	0-3	0	.2523	1-9	3
M	8	.0310	0-2	0	.3110	0-6	4
N	21	.0355	0-3	0	.3433	3-12	14#
O	8	.0252	0-2	0	.4113	0-7	3
P	14	.0181	0-2	0	.3787	1-10	2
Q	2	.0324	0-2	1	.2938	0-2	0
R	74	.0404	0-11	7	.2017	8-22	25#
S	6	.0211	0-2	0	.2087	0-4	0
T	0						
U	7	.0191	0-2	0	.2639	0-5	3
V	11	.0100	0-2	0	.3318	0-8	2
W	8	.0202	0-2	0	.3130	0-6	0
X	10	.0013	0-1	1	.2521	0-6	3
Y	44	.0027	0-4	0	.2040	4-14	9
Z	11	.0212	0-2	0	.0790	0-4	0
AA	29	.0356	0-4	2	.2320	2-12	13#
BB	5	.0040	0-1	0	.2405	0-4	0
CC	2	.0322	0-2	0	.2562	0-2	0
DD	10	.0149	0-2	1	.2748	0-6	6
EE	0						
FF	2	.0280	0-2	0	.2170	0-2	1
GG	1	.0126	0-1	0	.2750	0-1	1
HH	2	.0072	0-1	0	.2191	0-2	1
II	5	.0181	0-2	1	.0890	0-3	1
JJ	41	.0298	0-4	2	.3233	7-19	17
KK	6	.0208	0-2	0	.2873	0-5	2
LL	2	.0090	0-1	0	.3428	0-2	0
MM	3	.0067	0-1	0	.0147	0-1	0
NONEXEMPT:							
NN	9	.1165	0-4	0	.7195	3-9	0*
OO	42	.0111	0-6	2	.2791	6-17	1*
PP	7	.0180	0-2	1	.1954	0-4	1
QQ	65	.0695	0-10	4	.9325	57-65	59
RR	8	.0695	0-3	1	.9325	5-8	8
SS	76	.0344	0-10	9	.9294	66-75	66*
TT	1	.0337	0-1	0	.9220	0-1	0
UU	1413	.1291	158-207	468#	.7515	1030-1094	1081
VV	19	.0567	0-4	2	.9288	14-19	6*
WW	95	.0920	3-14	31#	.9675	89-95	93

Job Family Group	Total Hires	Blacks			Females		
		Avail.	Randomness Range	No. Hires	Avail.	Randomness Range	No. Hires
XX	39	.0924	0-8	12#	.9652	35-40	39
YY	1	.0893	0-1	0	.9496	0-1	1
ZZ	281	.0382	4-17	12	.9832	272-280	281#
AAA	61	.0681	0-9	22#	.9231	52-60	59
BBB	42	.0332	0-5	11#	.0104	0-6	3

* denotes underutilization statistically significant at the .05 level.
\# denotes overutilization statistically significant at the .05 level.

The data in this table were taken from tables 4 and 5 of the testimonial exhibits (Defendant's Exhibit 557).

utilization of females in a few job families, and statistically significant overutilization of females or blacks in a few job families.

To meet a possible accusation of over-segmentation of the Bank's work force, Dr. Stoikov performed additional studies using aggregations of job families.[188] Availabilities for these

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[188]Job families were aggregated into the following groups:

Group	Job Families
A-H	Officials and Managers
I-K	Accountants
L-P	Securities Analysts and Economists; Marketing
Q-W	Commercial Loan Analysts; Commercial Loan Representatives
X-Z	Data Processing
AA-CC	Trust Representatives; Consumer Loan Representatives
DD-II	Internal Services
JJ-MM	Operating Services; Petroleum Engineers
NN-PP	Computer Technicians
QQ-TT	Teller; Accounting Clerk
UU-VV	General Clerk
WW-AAA	Clerk/Typist; Secretary; Business Machine Operator
BBB	Security Guards

groups of job families were computed using weighted averages of individual job family availabilities. The results of comparisons using these aggregated job groups appear in the margin.[189] These results show a few instances of statistically significant overutilization.

[189] This table shows the availability, randomness range, and number of hires for 1970-74:

Job Family Group	Total Hires	Blacks			Females		
		Avail.	Randomness Range	No. Hires	Avail.	Randomness Range	No. Hires
EXEMPT:							
A-H	31	.0141	0-3	0	.2076	2-11	1*
I-K	85	.0318	0-10	1	.2115	11-25	20
L-P	89	.0261	0-10	0	.2239	12-28	24
Q-W	135	.0351	0-14	3	.1522	12-29	13
X-Z	81	.0074	0-6	1	.1432	5-18	11
AA-CC	48	.0301	0-5	0	.1726	3-13	7
DD-II	18	.0206	0-3	0	.1398	0-6	2
JJ-MM	55	.0288	0-9	3	.2310	7-19	5*
NONEXEMPT:							
NN-PP	42	.0215	0-4	5#	.2444	5-16	5
QQ-TT	293	.0310	3-15	27#	.8786	246-268	265
UU-VV	1911	.1055	175-228	417#	.7098	1318-1395	1490#
WW-AAA	529	.0504	17-37	65#	.9648	502-519	524#
BBB	35	.0322	0-4	8#	.0071	0-2	4#

The following table shows similar results for 1975-78:

EXEMPT:							
A-H	18	.0218	0-3	0	.2687	1-9	0*
I-K	87	.0271	0-10	5	.2882	17-33	27
L-P	70	.0272	0-9	0	.3298	15-31	26
Q-W	108	.0332	0-12	8	.2293	16-33	30
X-Z	65	.0056	0-5	1	.1902	6-19	12
AA-CC	36	.0310	0-4	2	.2345	3-13	13
DD-II	20	.0161	0-2	2	.2170	0-9	10#
JJ-MM	52	.0266	0-9	2	.3021	9-22	19
NONEXEMPT:							
NN-PP	58	.0283	0-9	3	.3373	13-27	2*
QQ-TT	150	.0515	2-13	14#	.9309	134-146	133*
UU-VV	1432	.1281	159-208	470#	.7539	1048-1112	1087
WW-AAA	477	.0573	17-37	77#	.9708	456-470	473#
BBB	42	.0332	0-5	11#	.0104	0-6	3

* denotes underutilization statistically significant at the .05 level.
# denotes overutilization statistically significant at the .05 level.

The data in these tables were taken from Tables 6-9 of the testimonial exhibits (Defendant's Exhibit 557).

F. *The Bank's Case: The Legal Standards.*

In the rebuttal phase, it is the defendant's burden to show that the apparently discriminatory results shown in the plaintiffs' *prima facie* case are in fact explainable by non-discriminatory factors. In the present case, the Bank proffers its desire to hire qualified individuals as a non-discriminatory explanation for the racial and sexual disparities shown to exist in its workforce. This explanation is acceptable — that is, the explanation is truly "nondiscriminatory" — if and only if the Bank can show its hiring standards to be job-related. *See generally* sections VI(B) and (E), *supra*. Since these hiring standards are transformed in the trial setting into occupational, educational, and geographical weights, the court must determine the type and quality of the proof which must be presented to show job-relatedness in this context.[190]

1. *Occupational and Educational Weights.*

The bulk of the cases which have addressed the requirement that hiring criteria be shown to be job-related have arisen in the context of a specific and usually inflexible requirement that an applicant pass a particular test or possess a particular degree or other objective measure of qualification. *E.g.*, *Griggs* v. *Duke Power Co.*, *supra* n. 38; *Scott* v. *City of Anniston*, 597 F.2d 897 (5th Cir. 1979), *cert. denied*, 100 S.Ct. 1850 (1980); *United States* v. *Georgia Power Co.*, *supra*. In such circumstances, the courts have required that an employer prove the job-relatedness[191] of the

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[190]The question of what the Bank must show to establish job-relatedness (*e.g.*, "business purpose," "business necessity," or other standards) is treated in sections VI(B) and (E), *supra*, and will not be discussed again here. It is instead the purpose of the present section to discuss the type of evidence which may be used to meet the appropriate standard of proof. Likewise, no mention is made in this section of proof of the presence or absence of alternative selection procedures with lesser disparate impact, since that topic relates primarily to the question of what must be shown rather than how it must be shown.

[191]*See* n.190, *supra*.

test, degree, or other requirement by means of evidence possessing high accuracy and reliability. The EEOC has developed guidelines for the validation of such requirements, which enable an employer to prove the validity of a requirement in any of three ways. *See* 29 C.F.R. §§ 1607.1 *et seq.* First, an employer may demonstrate "criterion validity" by producing "empirical data demonstrating that the selection procedure is predictive of or significantly correlated with important elements of job performance," 29 C.F.R. § 1607.5(B); *see* 29 C.F.R. § 1607.14(B). Second, an employer may show "content validity" through presentation of "data showing that the content of the selection procedure is representative of important aspects of performance on the job for which the candidates are to be evaluated," 29 C.F.R. § 1607.5(B); *see* 29 C.F.R. § 1607.14(C). Finally, the employer may prove "construct validity" by means of "data showing that the procedure measures the degree to which candidates have identifiable characteristics which have been determined to be important in successful performance in the job for which the candidates are to be evaluated," 29 C.F.R. § 1607.5(B); *see* 29 C.F.R. § 1607.14(D).

These guidelines include a myriad of technical requirements, *see* 29 C.F.R. § 1607.14, and performance of a study meeting these requirements may be enormously costly. *See* Gwartney, Asher, Haworth, & Haworth, *supra* n.40, at 643 (validation study for arithmetic test for machinists may cost $20,000 - $100,000). Hence it is not surprising that the guidelines, although entitled to deference as an administrative interpretation of Title VII by its enforcing agency, *Griggs* v. *Duke Power Co.*, *supra* n.38, at 433-34, have not been regarded by the courts as absolute requirements for a showing of job-relatedness. In *United States* v. *Georgia Power Co.*, *supra*, the Fifth Circuit stated:

> We view the reference to the Griggs court to EEOC guidelines as an adjunct to the ultimate conclusion that such tests must be demonstrated to the job related. We do not read *Griggs* as requiring compliance by every

> employer with each technical form of validation procedure set out in 29 C.F.R., Part 1607. Nevertheless, these guidelines undeniably provide a valid framework for determining whether a validation study manifests that a particular test predicts reasonable job suitability. Their guidance value is such that we hold they should be followed absent a showing that some cogent reason exists for noncompliance.

474 F.2d at 913. Thus, for example, courts have held that in specific cases validation need not be by means of empirical evidence, *Davis* v. *Washington*, 352 F.Supp. 187, 190-91 (D.D.C. 1972), *rev'd*, 512 F.2d 956 (D.C. Cir. 1975), *rev'd*, 426 U.S. 229 (1976); *see Washington* v. *Davis*, 426 U.S. 229, 249-52 & n.17 (1976) (expert opinion of personnel research psychologist, relying in part on empirical evidence, sufficient); *cf. United States* v. *Jacksonville Terminal Co.*, 451 F.2d 418, 456 (5th Cir. 1971), *cert. denied*, 406 U.S. 906 (1972) (validation "most often" by "positive empirical evidence"), and that it need not be performed by a "professional," *Broussard* v. *Schlumberger Well Services*, 315 F.Supp. 506, 512 (S.D.Tex. 1970). *See also Washington* v. *Davis*, *supra*, at 247 n.13 ("It appears beyond doubt by now that there is no single method for appropriately validating employment tests for their relationship to job performance." The reason for this relaxation was recently articulated by the Second Circuit: "The danger of too rigid an application of technical testing principles is that tests for all but the most mundane tasks would lack sufficient validity to permit their use." *Guardians Association of New York City Police Department, Inc.* v. *Civil Service Commission*, 23 Empl. Prec. Dec. ¶ 31,154, at 16,975 (2d Cir. 1980).

When the factual focus shifts from pencil-and-paper tests inflexibly required for low-level jobs to educational and experiential credentials used as flexible indicia of competence for skilled positions, the legal focus must shift as well:

> Case law fashioned to deal with the problems of providing equal employment opportunity for employees

> who work with their hands rather than with people, paper, or ideas cannot be applied without alteration or adjustment to employment practices at the white collar and professional levels. The problems of selecting and evaluating workers whose success depends upon such intangibles as salesmanship or innovation necessarily are very different from the problems of selecting assembly line workers or craftsmen. They require different procedures and are deserving of a different standard of judicial evaluation.

Waintroob, *supra* n.69, at 46. Three differences between the heretofore typical case and cases such as the present compel a reexamination of job validation requirements: the greater difficulty of predicting competent performance in skilled positions, with a concomitant and unavoidable degree of subjectivity in the hiring process; the difference between arbitrary employer-created and employer-scored tests and the more objectively reliable measures of competence used here; and the willingness of the employer to rely on a variety of criteria rather than a single standard which must be met by all candidates for a given position.

The hiring of skilled individuals for managerial and professional positions is qualitatively different from the hiring of lower-level employees. "Usually, lower-level persons are hired to perform some discrete function, but upper-level persons often are hired for their intelligence, initiative, compatability, experience or similar qualities, all of which resist measurement on an objective scale." Hunt & Pazuniak, *Special Problems in Litigating Upper Level Employment Discrimination Cases*, 4 Del. J. Corp. L. 114, 124 (1978). *Accord, e.g., Rogers* v. *International Paper Co.*, 510 F.2d 1340, 1345 (8th Cir.), *vacated on other grounds*, 423 U.S. 809 (1975) ("decisions about hiring and promotion in supervisory and managerial jobs cannot realistically be made using objective standards alone"); *EEOC* v. *E.I. du Pont de Nemours & Co.*, 445 F.Supp. 223, 254 (D. Del. 1978) (not "feasible to eliminate subjective criteria from the selection

process" for upper-level positions); *Frank* v. *United States Navy*, 16 Fair Empl. Prac. Cas. 67, 69-70 (E.D. Pa. 1977) ("subjective and technical factors necessarily must be considered" for promotion as naval architect), *aff'd mem.*, 609 F.2d 501 (3rd Cir. 1979); *cert. denied*, 48 U.S.L.W. 3602 (1980); *Kohn* v. *Royall, Koegel & Wells*, 59 F.R.D. 515, 521 (S.D.N.Y. 1973), *appeal dismissed*, 496 F.2d 1094 (2d Cir. 1974) ("hiring a professional requires weighing many subjective factors contributing to the applicant's qualifications as a whole, above and beyond the more objective academic qualifications").

The difficulty of quantifying and measuring the intangible skills which managerial and professional employees must bring to their jobs makes validation of a subjective decision-making process difficult. Gwartney, Asher, Haworth, & Haworth, *supra* n.40, at 641-42; Waintroob, *supra* n.69, at 67.[193] The EEOC guidelines recognize that the most common type of validation study — a content validity study — is not feasible in such a situation.[193] They also acknowledge that circumstances exist in which no validation (in the technical sense) is possible.[194] The difficulty of devising mathe-

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[192]In addition to this difficulty, the fact that such employees are often engaged in team efforts, wherein the marginal productivity of any one individual is difficult to measure, and the fact that such employees are often hired not only for their ability to perform in entry-level positions but also for their potential to advance to top-level positions, also render traditional validation difficult. Gwartney, Asher, Haworth, & Haworth, *supra* n.40, at 642-43 and n.20.

[193]"[A] content strategy is not appropriate for demonstrating the validity of selection procedures which purport to measure traits or constructs, such as intelligence, aptitude, personality, common sense, judgment, leadership, and spatial ability." 29 C.F.R. § 1607.14(C)(1), *quoted* in Hunt & Pazuniak, *supra*, at 128.

[194]"There are circumstances in which a user (of a selection procedure) cannot or need not utilize the validation techniques contemplated by these guidelines. In such circumstances, the user should utilize selection procedures which are as job related as possible and which will minimize or eliminate adverse impact, as set forth below." 29 C.F.R. § 1607.6(B). "When an informal or unscored selection procedure which has an adverse impact is utilized, the user should

matical tests for subjective qualifications such as loyalty, ability, reliability, and aptitude suggests that formal validation of such measures is a virtual impossibility. *See* Hunt & Pasuniak, *supra*, at 123-31.

That the decision to hire a managerial or professional employee is necessarily subjective does not mean that it cannot or need not be based at least in large part on objective criteria. These criteria may include such factors as education, experience, length of service, and possession of specific skills — criteria which though objectively measurable are weighted subjectively by the employer in making a hiring decision. The use of a subjective process which *does not* rely on objective (and hence reviewable) factors is condemned under Title VII because of the possibility for discrimination which such a system creates. *Rowe* v. *General Motors Corp.*, *supra* n.59, at 358-59. *See No-Alternative Approach*, *supra* n.37, at 111-12 (process must be both reasonable and reviewable). *See generally* Underwood, *supra* n.35 (tension between standardized criteria and subjective judgment in a variety of legal contexts). And, naturally, the use of a particular objective criterion must be justified on business grounds. *See* section VI(E), *supra*.

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eliminate the adverse impact, or modify the procedure to one which is a formal, scored or quantified measure or combination of measures and then validate the procedure in accor (sic) with these guidelines, or *otherwise justify continued use of the procedure in accord with Federal law*." 29 C.F.R. § .6(B)(1) (emphasis supplied). The Department of Justice has reaffirmed the availability of alternate procedures for showing job-relatedness: "12. Q. How can users justify continued use in accord with federal law of a procedure which has an adverse impact and which is not feasible or appropriate to validate? A. That subject is one to which the Guidelines are not addressed. In *Griggs* v. *Duke Power Co.*, 401 U.S. 424, the Supreme Court indicated that the burden on the user was a heavy one, but that the selection procedure could be used if there was a "business necessity" for its continued use. The federal agencies will consider evidence which shows "business necessity" to justify continued use of a selection procedure." United States Department of Justice, *Questions and Answers on the Federal Executive Agency Guidelines on Employee Selection Procedures*, 8 Lab. Rel. Rep. 771, 774-5 (1977), *quoted in* Hunt & Pazuniak, *supra*, at 127 n.43.

In the present case, the Bank has chosen to rely on two objective inputs into its subjective hiring process as those which exert the greatest influence on its hiring decisions: education, measured both by quantity and by field of study; and experience, measured primarily by an employee's occupation prior to coming to the Bank. This being the case, what showing must be made that these factors are job-related? In particular, must the Bank conduct a formal validation study to justify the hiring of bank managers as bank managers, MBAs as credit analysts, and so forth?

The EEOC guidelines purport to apply not only to formalized tests but to all other measures of employee qualification. 29 C.F.R. § 1607.2(B). Nevertheless, several courts have suggested that a lesser quality of proof is sufficient to establish the job-relatedness of college degrees for managerial, professional, and other white-collar positions. *See Spurlock* v. *United Airlines, Inc., supra,* at 219 (testimony of company officials adequate to establish job-relatedness of college degree requirement for airline pilots); *Castro* v. *Beecher,* 459 F.2d 725, 735 (1st Cir. 1972) (study by Presidential Commission shows job-relatedness of high school diploma requirement for police officers); *Scott* v. *University of Delaware,* 455 F.Supp. 1102, 1124-268 n.64 (D. Del. 1978), *vacated on other grounds,* 601 F.2d 76 (3d Cir.), *cert denied,* 444 U.S. 931 (1979) (Ph.D. requirement for university professors held job-related despite "surprisingly sparse" evidence); *League of United Latin American Citizens* v. *City of Santa Ana,* 410 F.Supp. 873, 900-02 (C.D. Cal 1976) (high school diploma requirement for police officers but not for firefighters; extent of evidence not fully stated). *See generally* Hunt & Pazuniak, *supra* at 134-44.[195]

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[195]Indeed, a few lower courts have upheld degree requirements despite little or no job-relatedness evidence. *See EEOC* v. *Georgia-Pacific Corp.,* 456 F.Supp. 1227, 1237 (N.D. Miss. 1977) (foresters "of necessity" must have forestry degrees); *Keyes* v. *Lenoir Rhyne College,* 15 Fair Empl. Proc. Cas. 914, 923 (W.D.N.C. 1976), *aff'd,* 552 F.2d 579 (4th Cir.), *cert. denied,* 434 U.S. 904 (1977) (Ph.D. "presumably evidence" of job-related skills and knowledge); *Arnold*

One reason for this apparent willingness to relax stringent validation requirements may lie in the lesser potential for abuse of academic credential requirements compared to employment tests. Most such tests are employer-scored; many are employer-created. Usually no objective outsider has determined whether the tests accurately measure *any* particular skill, much less skills in the position for which the tests are being administered. In such a situation, the potential for deliberate use of the tests as racial or sexual screening devices is high. Even if no overtly discriminatory motive is present, the use of the tests by an employer not qualified to judge their relevance creates the risk that minorities or females may be needlessly excluded from positions for which they are actually qualified. In contrast, a college degree reflects the judgment of a comparatively neutral institution, better qualified and with greater opportunity than the employer to assess an individual's credentials, that the recipient has reached a threshold level of competence in a given field. The risk still remains that an employer will erroneously require a greater degree of knowledge and skill than is appropriate; more objective measurement of competence nevertheless suggests that the need for formal validation is diminished.[196]

Finally, the present case differs from the traditional validation situation in that no one credential is inflexibly required for any position. Ample testimony establishes that the Bank has no formal degree requirements for any of its jobs. While in many job families college degrees are desired, including in some cases specific degrees in specific fields, Bank officials

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v. *Ballard*, 390 F.Supp. 723, 738 (N.D. Ohio 1975). *See also* Lerner, Washington v. Davis: *Quantity, Quality and Equality in Employment Testing*, 1976 Sup. Ct. Rev. 263, 306 (1977) (advocating that validation not be required for educational requirements for professional jobs).

[196]The Tenth Circuit has advanced a further reason for relaxing proof requirements in this context, suggesting that the employer's burden of showing job-relatedness should diminish as the degree of skill and the economic and human risks of hiring an unqualified applicant increase. *Spurlock* v. *United Airlines, Inc., supra*, at 219.

testified that each applicant is evaluated on his or her own merits. Thus, for example, while 51% of new credit analysts have MBA degrees, another 29% have only a business-related bachelor's degree. *See* n.212, *infra*. Some MBA applicants are regarded as unqualified, by virtue of poor academic performance or other deficiencies, while some applicants with business-related bachelor's degrees (or other educational backgrounds) are perceived as having strong points which compensate for their lack of training at the master's level. Similarly, some credit analysts are hired for their experience in banking or other fields in lieu of recent formal education.[197]

The Bank's hiring practices have been used to develop occupational and educational weights, which correspond to the proportions of individuals hired into each job family who possess given academic or experiential credentials. These weights proxy for the importance which the Bank attaches to a given qualification for a given job family.[198] Reliance on a single qualification as the sole reason a particular employee was hired is admittedly an over-simplification: many employees were hired for a variety of reasons

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[197]It is this give-and-take which mandates the rejection of Dr. Madden's argument that availability should be measured by choosing the one credential used by the Bank for each job family which gives the highest female or black availability. The fact that one math major, who may have been first in her class, taken several business-related courses, and had other outstanding credentials, was hired as a credit analyst, *see* n.212, *infra*, does not mean that all math majors are qualified for that position.

[198]A more general case of hiring decision-making would occur if the employer sought to justify a hiring "equation"; that is, if the employer used — consciously or unconsciously — a formula whereby attainment of, *e.g.*, 100 points were necessary for a positive hiring decision. He might assign 30 points to possession of a particular degree, 50 points to graduation in a particular field of study, 50 points to experience of a certain sort, and 90 points for having good sales ability. In such a case, as to the predictors with disparite impact, the employer would have to show that a race and sex-blind employer would weigh those predictors similarly. *See* section VI(E), *supra*.

and based on a variety of qualifications. The weighted average approach does, however, provide a rough measure of the employment criteria used by the Bank for each job family.

In this context, a showing of job-relatedness takes the form of a demonstration that the pool of qualified individuals possesses the same mix of occupational and educational credentials as the employer's hires — that is, that the weights used by the employer are correct.[199] Thus, if an employer hires into a job family *only* those with a given degree or type of experience (*i.e.*, a 100% weight), he must show that of those qualified for that job family, 100% have that credential, *i.e.*, that the credential is *essential* to render an individual qualified. *E.g.*, *Griggs* v. *Duke Power Co.*, *supra* n.38 (high school diploma requirement).[200] If 60% of the hires in a job family possess a given credential, the defendant need only show that 60% of those qualified for that job family have that credential, the lack of which can be overcome by one who possesses skills which comprise the other 40% of the weighting.[201] And if education or experience of a particular type accounts for only 1% of the weighting, the employer need only show that an occasional qualified person possesses that type and level of education or experience, and that the bulk of the qualified pool possess

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[199]This concept has been discussed in the contexts of econometric modeling and job-relating a predictor to the extent an employer weights that predictor, as "proper treatment across twins." *See* sections VI(B) and VI(E), *supra*.

[200]For example, a law firm could justify an absolute requirement that hires for attorney positions possess law degrees, since all attorneys must have such a degree in order to be considered qualified under state law.

[201]For example, a university might justify a practice of hiring 60% physicists and 40% chemists into positions as physical chemistry professors by showing that the pool of qualified physical chemistry professors is made up 60% of physicists and 40% of chemists.

other qualifications.[202] Throughout this analysis, the touchstone remains a showing that the defendant does what a nondiscriminatory employer would do, *i.e.*, that he hires from particular groups in proportion to the extent those groups make up the pool of qualified individuals.[203] Proof

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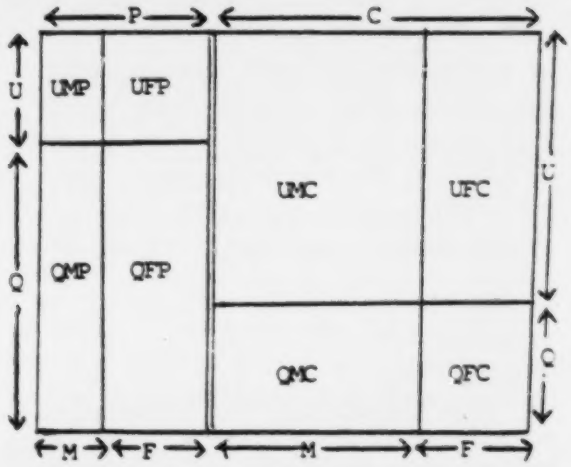
[202]For example, a professional football team could justify a practice of occasionally hiring a college baseball player by showing that a few qualified football players have backgrounds in college baseball rather than football.

[203]The theoretical underpinnings of the use of the empoyer's hiring history in determining weights for a weighted average availability are rather complex. The only assumption required for such use, however, is that within groups possessing a given credential used for hiring, members of different sexes or races are equally likely to be qualified. Consider, for example, the example of physical chemistry professors given in n.201, *supra*. The pool of all physicists and all chemists may be diagramed as follows:

Q = qualified;
M = males;
P = physicists;
U = unqualified
F = females
C = chemists



We are given the availability of females among physicists, a_P = FP/P, and among chemists, a_C = FC/C, and want to know the availability of females among those qualified, that is, QF/Q. The employers must produce job-relatedness evidence which shows that the proportion of the employer's hires which are physicists (symbolized h_P, 60% in our example) and the proportion which are chemists (symbolized h_C, 40% in the example) reflect the respective proportions which qualified physicists and chemists represent among all those qualified. In mathematical terms, he must show that h_P = QP/Q and h_C = QC/Q.

that this is so cannot and need not be accomplished through formal alidation (sic) studies. Nevertheless, the Bank continues to bear the burden of showing that its educational and occupational preferences "have a manifest relationship to the employment in question," and that diplomas (and work histories) are indeed the "useful servants" the Supreme Court envisioned they could be *Cf. Griggs* v. *Duke Power Co., supra* n.38, at 432-33.

2. *Geographical Weights.*

The choice of an appropriate geographical labor market has caused considerable difficulty for the courts. A variety of approaches to the problem has been employed.[204] While

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Applying some elementary algebra:

$QF/Q = QFP/Q + QFC/Q$ (qualified females are either physicists or chemists)
$= (QFP/QP)(QP/Q) + (QFC/QC)(QC/Q)$ (algebraic manipulation)
$= (QFP/QP)\, h_P + (QFC/QC)\, h_C$ (from the job-relatedness requirement above)

We make the *assumption* that a female physicist (or chemist) is *as likely to be qualified* as a male physicist (or chemist). *I.e.*, $QFP/QP = FP/P$, $QFC/QC = FC/C$ (females are qualified among physicists or chemists in proportion to their numbers).

$QF/Q = (QFP/QP)\, h_P + (QFC/QC)\, h_C$ (as above)
$= (FP/P)\, h_P + (FC/C)\, h_C$ (based on the above assumption)
$= a_P h_P + a_C h_C$ (from the definitions of a_P and a_C)

Thus we see that the availability of female physical chemistry professors (QF/Q) equals the availability of female physicists (a_P) weighted by the proportion of hires which were physicists (h_P, or 60%) plus the availability of female chemists (a_C) weighted by the proportion of hires which were chemists (h_C, or 40%). The same procedure can be used to obtain weighted average black availabilities.

[204] *See, e.g., Movement* v. *GMC, supra* (weighted average of SMSA counties based on employees); *United States* v. *Ironworkers Local 86*, 443 F.2d 544, 551 and n.19 (9th Cir.), *cert. denied*, 404 U.S. 984 (1971) (city data); *Gay* v. *Waiters' and Dairy Lunchmen's Union*, 489 F.Supp. 282, 302-03 (N.D. Cal. 1980) (weighted average,

some courts have blindly accepted the use of the area in which an employer recruits, *e.g.*, *Detroit Police Officers Ass'n* v. *Young*, 446 F.Supp. 979 (E.D. Mich. 1978), *rev'd on other grounds*, 608 F.2d 671 (6th Cir. 1979), this practice is fraught with possibilities for undetected discrimination. For example, an employer located in or near a predominantly white suburb could recruit from that area even though economic factors such as availability of qualified employees and ease of commuting might dictate that a nondiscriminatory employer would recruit from a broader area. *See Mays* v. *Motorola, Inc.*, 18 Emp. Prac. Dec. ¶ 8,903 (N.D. Ill. 1979) (such a case); Gastwirth & Haber, *supra* n.204, at 34. Alternatively, an employer might recruit nationally despite an abundance of qualified applicants in an area closer to home with greater than average minority representation.

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based on applications, between central city and balance of SMSA); *Greenspan* v. *Automobile Club of Michigan*, 22 Empl. Prac. Dec. ¶ 30, 812, at 15,166 (E.D. Mich. 1980) (statewide and national data); *Baker* v. *City of Detroit*, 483 F.Supp. 930, 959 (E.D. Mich. 1979) (greater weight given to city over SMSA based on applications); *Drayton* v. *City of St. Petersburg*, 477 F.Supp. 846, 857-58 (M.D. Fla. 1979) (SMSA data, based on employees and applications); *Louisville Black Police Officers Organization, Inc.* v. *City of Louisville*, 21 Empl. Prac. Dec. ¶ 30,330 (W.D. Ky. 1979) (weighted average, based on applications, between city, county, and SMSA, adjusted for various factors); *EEOC* v. *E. I. du Pont de Nemours & Co., supra, at* 236-38 (SMSA data; use of weighted average of concentric circles around defendant's plant rejected for failure to consider patterns of social and economic integration); *Smith* v. *Union Oil Co.*, 17 Empl. Prac. Dec. ¶ 8,411 (N.D. Cal. 1977) (SMSA, with higher weight for central city); *Domingo* v. *New England Fish Co.*, 445 F.Supp. 421, 431-33 (W.D. Wash. 1977) (weighted three-state average based on hiring rejected in seasonal industry with isolated plants; industrywide data used); *League of United Latin American Citizens* v. *City of Santa Ana, supra,* at 896-97 (city data used despite contrary hiring pattern). *See generally* Gastwirth & Haber, *Defining the Labor Market for Equal Employment Standards*, 99 Monthly Lab. Rev. 32 (1976) (advocating weighted average approach using residences of current employees).

Courts which have gone beyond the area-where-the-employer-recruits standard have adopted a variety of formulations for determining the appropriate geographical labor market. *See, e.g., United States* v. *Ironworkers Local 86, supra* n.204, at 551 n.19 (area "from which [employer] would most likely draw vast majority of workers"); *Johnson* v. *Goodyear Tire & Rubber Co.*, 491 F.2d 1364, 1371 (5th Cir. 1974) (statistics must reflect mobility of labor force); *Greenspan* v. *Automobile Club of Michigan, supra*, n.204, at 15,166 (area "must bear a reasonable relationship to the scope of the employer's business and the area from which it draws applications and employees"). These standards represent variations on a common theme: the touchstone with geographical weighting, as with occupational and educational weighting, is the weighting which a nondiscriminatory employer would use. As the Supreme Court has recognized, this is a factual determination which must be made on a case-by-case basis. *Hazelwood School District* v. *United States, supra* n.99, at 310-12. The relevant market will also vary according to the type of job in question. Where the court finds that geographical hiring practices, having a disparate impact, are not justified by economic factors, it must require the use of the appropriate labor market statistics even if this means choosing an area other than that from which the defendant actually hires. *League of United Latin American Citizens* v. *City of Santa Ana, supra*, at 897.[205]

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[205] Since the geographical regions which naturally suggest themselves for availability analysis, and for which data tend to be available, are not mutually exclusive and often tend to be concentric, considerable caution must be employed in choosing appropriate regions. For example, an employer who hires exclusively from the central city can with equal correctness state (1) that his entire work force comes from the city; (2) that it comes from the county; (3) that it comes from the SMSA; (4) the state; (5) the region; and so forth. These markets may have widely different availabilities of blacks and females. The employer must be required to use the region which most accurately describes the relevant geographical market (or some sort of weighted average, see the cases cited in n.204, *supra*) and for which adequate statistical data are available.

G. *The Bank's Case: Applying the Law to the Data.*

Analysis of the Bank's rebuttal effort must begin with an evaluation of the validity of the job family approach at the core of that effort. Although the plaintiffs raise numerous challenges to the use of job families, none can overcome the utility of the concept in the identification of requisite skill levels among a vast population of job titles, and the resulting facilitation of detailed statistical analysis. The theory of the use of job families cannot seriously be questioned. As the Office of Federal Contract Compliance Programs ("OFCCP") has recognized, a grouping of jobs by content, compensation, and opportunity for advancement unquestionably facilitates statistical analysis of employment discrimination. The utility of the job family approach has been recognized by other courts. *Movement* v. *GMC, supra,* at 1266; *cf. Croker* v. *Boeing Co.,* 437 F.Supp. 1138, 1156 (E.D. Pa. 1977) (use of census standard occupational classifications). Perhaps recognizing the theoretical validity of the job family approach, the plaintiffs' objections to the use of job families focus on the way in which that concept was put into practice at the Bank.

While job titles were matched to job families by an EEO task force at the Bank, many of whom had no experience as personnel administrators outside the Bank, this function was not accomplished without objective checks on its accuracy. The guidelines of the OFCCP were followed, the results audited on the basis of a questionnaire survey of current Bank employees, and the final product evaluated by a labor economist from outside the Bank. Although the job family concept was admittedly developed with this litigation in mind, the Bank's expressed intention, already partially fulfilled, to utilize the job families as an integral part of its ongoing personnel administration mitigates incentives to distort results to aid the litigation effort. More importantly, when the focus is turned from incentives for distortion to actual evidence of distortion, the plaintiffs' criticisms founder. An intuitive check of the match between job titles and job families, presented in Defendant's Exhibit

402, confirms the reasonableness of the classifications. While some job families at the Bank contain (contrary to Dr. Stoikov's assertions) too few incumbents to support meaningful statistical analysis, this problem can be solved through aggregation of job families where necessary, and the Bank's statistical presentation recognizes this fact.

We turn now from job families to the statistical results obtained when such job families are used. The results of Dr. Stoikov's analysis for black nonexempt hiring appear in n.187, *supra*. The results for the 1970-74 time period show no statistically significant underutilization of blacks, and several families in which significant overutilization is present. These data are, however, subject to an important statistical flaw. In many job families, zero black hires falls within the randomness range, *i.e.*, the range of the number of black hires in which no statistical significance at the 5% level is present. In such a situation, the statistical test tells us nothing: even were discrimination rampant, resulting in no black hires whatsoever, the test would show no significance at the .05 level. Where zero hires is part of the randomness range, statistical significance can *never* be present. This fact indicates that job families in which this phenomenon is present contain, at least for present purposes, too few members (or in this case, hires) for meaningful statistical analyses.

This problem is largely eliminated when the aggregated data of n.189, *supra*, are used. In each of the aggregated job family groups, the number of black hires is nonzero, and in most such groups, the randomness range does not include zero. These results show statistically significant *overhiring* of blacks into all nonexempt aggregated job family groups. Hence the *prima facie* case of discrimination in black nonexempt hiring has been successfully rebutted *if* the assumptions underlying the availability figures are logically and legally valid.

The availability figures for blacks in nonexempt job families, as with all of Dr. Stoikov's availability figures, are

weighted averages of the availabilities of blacks in various occupational groups in various geographical markets, and at various educational levels. The weights utilized by Dr. Stoikov for nonexempt job families are shown in the margin.[206] With exceptions in the computer technician job

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[206]

Job Family Group		Occupational or educational qualification and weight (with geographical weights)
NN	93.3%	wide aggregation of clerical job codes, including inexperienced unemployed (¾ DFW, ¼ Texas)
	6.7%	Business-related bachelor's degree
OO	97.4%	Computer and peripheral equipment operators (75% DFW, 15% Texas, 10% US)
	1.3%	Business-related bachelor's degree
	1.3%	Mathematics bachelor's degree
PP	59.3%	Computer specialists and computer and peripheral equipment operators (85% DFW, 15% US)
	29.6%	Managers and administrators (85% DFW, 15% US)
	11.1%	Bachelor's degree (any major)
QQ	100.0%	Bank tellers (¾ DFW, ¼ Texas)
RR	100.0%	Bank tellers (¾ DFW, ¼ Texas)
SS	100.0%	Bookkeepers (DFW Market)
TT	100.0%	Bookkeepers and clerical supervisors (DFW Market)
UU	100.0%	wide aggregation of clerical job codes, including inexperienced unemployed (DFW market)
VV	100.0%	aggregation of clerical job codes (DFW market)
WW	100.0%	Receptionists and typists (DFW market)
XX	100.0%	Typists (DFW market)
YY	100.0%	Clerical supervisors and typists (DFW market)

families, virtually all nonexempt availabilities were based on availabilities of blacks in specific occupational categories in the Dallas/Fort Worth SMSA.

The flaw in the weightings used for nonexempt hiring is that the Bank presented no evidence to demonstrate the job-relatedness of the weights as hiring criteria. Thus, for example, there is no evidence that experience as a "computer and peripheral equipment operator" is, as the Bank's hiring record would suggest, a virtual prerequisite for the job of computer operator (job family 00).[207] While the court may have some intuitive idea that prior experience as a computer operator is helpful in performing that job, such intuition does not extend to validation of a practice of near-complete refusal to hire one who does not possess such experience. Intuition similarly suggests that a degree in computer science would make one a better computer operator, but that fact alone, absent a showing that such a degree is required in substantially all cases for such a job, would not justify a practice of recruiting computer operators almost completely from those with such degrees. This problem is exacerbated for job families (*e.g.*, "production coordinator," job family PP) whose titles give little clue to their

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Job Family Group	Occupational or educational qualification and weight (with geographical weights)	
ZZ	100.0%	Secretaries and stenographers (DFW market)
AAA	100.0%	Key punch operators (DFW market)
BBB	100.0%	Protective service workers (DFW market)

"DFW" refers to the Dallas/Fort Worth SMSA.

Occupational categories refer to Census Bureau occupational classifications. *See* Bureau of the Census, U.S. Department of Commerce, *Classified Index of Industries and Occupations* X-XIV (1971) (Defendant's Exhibit 558). The weights in this table are taken from Appendix B to Dr. Stoikov's report (Defendant's Exhibit 33).

[207] 97.4% of the Bank's hires into family 00 held that credential. *See* n.206, *supra*.

content. Even job family titles such as "general clerk" may be misleading: the content and levels of skill in such positions may be different from those which the title would imply.

In the clerical and service worker job families, the use of 100% weight for incumbency in various occupational categories has not been justified. For example, the Bank has not shown that only those in the labor market presently holding receptionist or typist jobs are qualified for clerk/typist positions (job families WW and XX), although a 100% weight has been assigned in those job families to those so employed, or that only those who are now working as protective service workers are qualified to be security guards (job family BBB) at Republic, although a 100% weight is employed there as well.[208] While the proffered availability pools for some job families (junior computer operator, job family NN, and lower-level general clerk, job family UU) include the inexperienced unemployed, there has been no showing that that group does not possess and cannot easily acquire the skills necessary to perform in at least some of the 13 other nonexempt job families. Nor has the Bank demonstrated that incumbents of one occupational category (*e.g.*, bookkeepers) cannot readily perform or acquire the skills to perform in a different but related and roughly comparable job family (*e.g.*, bank tellers).[209]

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[208]It should be noted that, while occupational and educational weights for exempt and technical job families were based on the *actual* qualifications possessed by those hired, the 100% weights in clerical and service job families were based on an unverified *assumption* that only tellers can be tellers, typists can be typists, and so forth. Acceptance of comparisons based on this assumption would allow a defendant to discriminate so long as its discrimination did not exceed that engaged in by society as a whole.

[209]Of course, the Bank is entitled to exclude from the availability pool those who, while qualified for a position, are not likely to apply for that position due to their overqualification. Thus while lawyers presumably possess the skills necessary to be janitors, the availability pool for janitorial jobs need not include those presently employed as lawyers. This factor could not, however, justify the

In sum, the Bank has not shown that its proffered occupational and educational weights are accurate reflections of job-related skill requirements in nonexempt job families.

The Bank's failure to show the job-relatedness of its occupational and educational weights is alone sufficient to warrant rejection of its rebuttal evidence as to black nonexempt hiring. Added to this inadequacy, however, is the questionable use of the Dallas/Fort Worth SMSA as the relevant labor market for most nonexempt hiring. While it is unquestionable that most of the Bank's nonexempt labor force comes from within the D/FW SMSA, use of SMSA statistics may significantly underestimate the true availability of blacks for nonexempt jobs. *See* n.205, *supra*. As previously noted, most nonexempt applicants are "walk-ins" at the Bank's headquarters in the central city. Economic literature suggests that workers in lower-level jobs are more likely to live near their workplace than are their higher-paid counterparts. *See, e.g.*, Gastwirth & Haber, *supra* n.204, at 33 & n.7. Absent a showing that clerical workers are in fact recruited from throughout the Dallas/Fort Worth area, use of SMSA rather than city statistics is intuitively suspect.

Turning to Dr. Stoikov's results for female exempt hiring, the figures shown in n.187, *supra*, suffer from the same statistical drawback as those which relate to blacks: in most cases, zero hires is part of the randomness range, and in several job families the actual number of female hires is also zero. Use of the partially aggregated figures of n.189, *supra*, largely eliminates this problem. The results show statistically significant underhiring of females as officials

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restriction of the availability pool to only those now employed in janitorial positions, since some people presently otherwise employed might well be interested in such positions. While Dr. Stoikov states (at page 5 of her report, Defendant's Exhibit 33) that "occupational qualifications were interpreted broadly to encompass all employed and unemployed persons having comparable levels of skill," an examination of the narrowness of fit between census occupational classifications and most job families belies this assertion.

and managers, and, for 1970-74, as operating services personnel and petroleum engineers. Significant overhiring is present in 1975-78 for internal services personnel. The balance of the results are mixed: during 1970-74, most job family groups show underhiring which is not significant at the .05 level (*i.e.*, actual hires are within the randomness range, but below the midpoint of that range), while 1975-78 figures generally show nonsignificant overhiring (actual hires within the range but above the midpoint).

The results in this form are hard to interpret. While only scattered instances of statistical significance are present, this may be due in no small part to the "divide-and-conquer" aspect inherent in the fragmentation of the workforce into job families or even into broad job family groups.[210] It is fortunately possible to eliminate this potentially biasing factor while retaining the flexibility in determining availabilities which the job family approach provides. Dr. Stoikov aggregated job families by weighting the availabilities in n.187, *supra*, by the number of hires into the corresponding job families, to obtain the job family group availabilities in n.189, *supra*. A further aggregation of the group availabilities into a single weighted average availability figure for female exempt hires, using the same procedure, enables the court to evaluate the Bank's hiring performance across the exempt group as a whole.

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[210] That the Z-score (or, equivalently, the randomness range) is sensitive to fragmentation of the population can be seen from the presence of N in the denominator of the fraction given in n.162, *supra*. For example, when a population of size N is broken into two populations of size N/2, the Z-score is reduced by 29%, without any corresponding change in the underlying disparities. Thus if an employer hires 16 females out of 100 hires, where female availability is 25%, statistical significance present when the group is taken as a whole ($Z = -2.08$) disappears when two subgroups of 50 are considered ($Z = -1.47$). *See generally* D. Baldus & J. Cole, *supra* n.55. § 9.221, at 309-10.

The results of such an aggregation are shown in the margin.[211] The results for 1975-78 show statistically significant overhiring of females, while the 1970-74 figures show underhiring at the 6% level of significance (Z = -1.88). The effect of these results on the Bank's liability for female exempt hiring turns on the extent to which the occupational, educational, and geographical weights used in the availability calculations have been shown to be job-related.[212]

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[211]

	1970-74	1975-78
weighted average availability	.1845	.2601
total hires	542	456
total female hires	83	137
females as proportion of hires	.1531	.3004
standard deviation	9.030	9.368
Z	−1.8817	+1.9626
significance level	.0600	.0497

[212]The weights used by Dr. Stoikov for exempt availabilities are as follows:

Job Family Group		Occupational or educational qualification and weight (with geographical weights)
A	75.0%	Bank officers & financial managers (US market)
	25.0%	Petroleum engineers (US market)
B	100.0%	Accountants (½ DFW, ½ US)
C	100.0%	Bank officers & financial managers (¼ Texas, ¾ US)
D	100.0%	Bank officers & financial managers (US market)
E	100.0%	Computer systems analysts & computer specialists (60% DFW, 20% Texas, 20% US)
F	100.0%	Bank officers & financial managers (US market)
G	100.0%	Lawyers (US market)
H	75.0%	Bank officers & financial managers (US market)
	25.0%	MBA degree
I	42.1%	Accountants (90% DFW, 10% Texas)
	49.8%	Business-related bachelor's degree
	8.1%	MBA degree

Job Family Group	Occupational or educational qualification and weight (with geographical weights)	
J	75.0%	Accountants (80% DFW, 10% Texas, 10% US)
	10.7%	Bank officers & financial managers (80% DFW, 10% Texas, 10% US)
	2.4%	Business-related bachelor's degree
	8.3%	MBA degree
	3.6%	Law degree
K	95.0%	Accountants (80% DFW, 10% Texas, 10% US)
	5.0%	MBA degree
L	52.1%	Bank officers & financial managers (⅓ DFW, ⅓ Texas, ⅓ US)
	15.6%	Economists & stock and bond salesmen (¾ DFW, ¼ US)
	19.0%	Business-related bachelor's degree
	1.6%	Mathematics bachelor's degree
	12.7%	MBA degree
M	63.6%	Public relations men and publicity writers & advertising agents and salesmen (½ DFW, ¼ Texas, ¼ US)
	27.3%	Business-related bachelor's degree
	9.1%	MBA degree
N	19.7%	Bank officers & financial managers (90% DFW, 10% Texas)
	39.4%	Salesmen and sales clerks (90% DFW, 10% Texas)
	20.5%	Business-related bachelor's degree
	3.0%	Mathematics bachelor's degree
	14.4%	Bachelor's degree (any major)
	3.0%	Master's degree (other than MBA or computer science)
O	16.7%	Salesmen of services and construction (5/6 DFW, 1/6 US)
	25.0%	Bank officers & financial managers (5/6 DFW, 1/6 U.S.)
	50.0%	Professional, Technical, and Kindred workers generally (5/6 DFW, 1/6 US)
	8.3%	Clerical and kindred workers generally (5/6 DFW, 1/6 US)
P	33.3%	Salesmen of services and construction (70% DFW, 13.3% Texas, 16.7% US)

Job Family Group		Occupational or educational qualification and weight (with geographical weights)
	23.3%	Bank officers & financial managers (70% DFW, 13.3% Texas, 16.7% US)
	43.3%	Professional, Technical, and Kindred workers generally (70% DFW, 13.3% Texas, 16.7% US)
Q	60.0%	Bank officers & financial managers (½ DFW, ¼ Texas, ¼ US)
	40.0%	Business-related bachelor's degree
R	9.2%	Bank officers & financial managers (½ DFW, ¼ Texas, ¼ US)
	9.2%	Professional, technical, and kindred workers generally (½ DFW, ¼ Texas, ¼ US)
	29.0%	Business-related bachelor's degree
	0.6%	Mathematics bachelor's degree
	51.2%	MBA degree
	0.6%	Law degree
S	35.6%	Assessors, controllers, and treasurers; local public administration (80% DFW, 20% US)
	35.6%	Inspectors, except construction, public administration (80% DFW, 20% US)
	17.7%	Real estate agents and brokers (80% DFW, 20% US)
	11.1%	Business-related bachelor's degree
T	100.0%	Bank officers & financial managers (½ DFW, ¼ Texas, ¼ US)
U	58.3%	Bank officers & financial managers (80% DFW, 20% US)
	8.4%	Bachelor's degree (any major)
	33.3%	MBA degree
V	95.0%	Bank officers & financial managers (⅓ DFW, ⅓ Texas, ⅓ US)
	5.0%	MBA degree
W	100.0%	Bank officers & financial managers (¼ DFW, ¾ US)
X	96.0%	Computer programmers, (⅔ DFW, ⅓ Texas)
	4.0%	Professional, technical, and kindred workers generally (⅔ DFW, ⅓ Texas)
Y	82.2%	Computer programmers (60% DFW, 20% Texas, 20% US)
	15.9%	Computer specialists (60% DFW, 20% Texas, 20% US)
	1.9%	Master's degree (computer science)

Job Family Group		Occupational or educational qualification and weight (with geographical weights)
Z	92.9%	Computer system analysts & computer specialists (60% DFW, 20% Texas, 20% US)
	7.1%	MBA degree
AA	9.8%	Lawyers (75% DFW, 10% Texas, 15% US)
	14.8%	Bank officers & financial managers (75% DFW, 10% Texas, 15% US)
	14.8%	Accountants (75% DFW, 10% Texas, 15% US)
	2.5%	Farm managers (75% DFW, 10% Texas, 15% US)
	4.8%	Managers and administrators (75% DFW, 10% Texas, 15% US)
	2.5%	Real estate agents and brokers (75% DFW, 10% Texas, 15% US)
	24.3%	Business-related bachelor's degree
	1.5%	Mathematics bachelor's degree
	3.7%	Bachelor's degree (any major)
	6.1%	MBA degree
	15.2%	Law degree
BB	50.0%	Bank officers & financial managers (60% DFW, 30% Texas, 10% US)
	50.0%	Purchasing agents & buyers (60% DFW, 30% Texas, 10% US)
CC	57.1%	Bank officers & financial managers (40% DFW, 60% US)
	14.3%	Sales managers, except retail trade (40% DFW, 60% US)
	28.6%	Business-related bachelor's degree
DD	87.5%	Personnel and labor relations workers (30% DFW, 10% Texas)
	12.5%	Business-related bachelor's degree
EE	100.0%	Policemen, detectives, guards, and watchmen (DFW market)
FF	50.0%	Bank officers & financial managers (US market)
	50.0%	MBA degree
GG	50.0%	Draftsmen (DFW market)
	50.0%	Designers (DFW market)
HH	75.0%	Editors and reporters (⅓ DFW, ⅔ Texas)
	25.0%	MBA degree
II	81.8%	Computer systems analysts, computer specialists, & operations and systems researchers and analysts (DFW market)

Job Family Group		Occupational or educational qualifications and weight (with geographical weights)
	9.1%	Computer science bachelor's degree
	9.1%	MBA degree
JJ	25.9%	Bank officers & financial managers (75.9% DFW, 7.1% Texas, 17% US)
	4.7%	Accountants (75.9% DFW, 7.1% Texas, 17% US)
	3.5%	Credit men (75.9% DFW, 7.1% Texas, 17% US)
	31.8%	Professional, technical, and kindred workers generally (75.9% DFW, 7.1% Texas, 15% US)
	7.6%	MBA degree
	19.45%	Business-related bachelor's degree
	4.7%	Bachelor's degree (any major)
	2.4%	Master's degree (other than MBA or computer science)
KK	58.3%	Bank officers & financial managers (36.4% DFW, 9.1% Texas, 54.6% US)
	16.7%	Computer specialists (36.4% DFW, 9.1% Texas, 54.6% US)
	16.7%	Professional, technical, and kindred workers generally (36.4% DFW, 9.1% Texas, 54.6% US)
	8.3%	Business-related bachelor's degree
LL	100.0%	Bank officers & financial managers (⅓ DFW, ⅓ Texas, ⅓ US)
MM	100.0%	Petroleum engineers (US market)

This table is derived from Appendix Bl of the testimonial exhibits (Defendant's Exhibit 557).

The principal testimony in this regard was presented by Thomas Hofstedt, Ph.D. Dr. Hofstedt undertook a comprehensive review of the Bank's hiring policies and practices. This review consisted of a study of the formal systems of organization, job descriptions, and other documentation

[213]Dr. Hofstedt is Chairman of the Accounting Department at the graduate business school at Southern Methodist University, and previously taught at Stanford and Cornell Universities. Dr. Hofstedt's teaching emphasizes the banking-related disciplines of accounting, corporate reporting, organizational control, and financial accounting. He spends 30 to 40 days a year as a consultant to the banking industry, specializing in the design and teaching of management training programs.

used by the Bank, followed by interviews with 15-18 Bank employees and a review of summary hiring data. Interviews were also conducted with the Bank's senior management and with a number of graduates of the Bank's management training programs. Dr. Hofstedt then related his findings at Republic with his experience involving other large commercial banks and the commercial departments of large retail banks.

Dr. Hofstedt found Republic to be remarkably similar to other large commercial banks. In particular, he found the qualifications required by Republic for most exempt positions to be similar to those required by other banks. He discussed at length the mix of education and experience required for a variety of job families,[214] and concluded that

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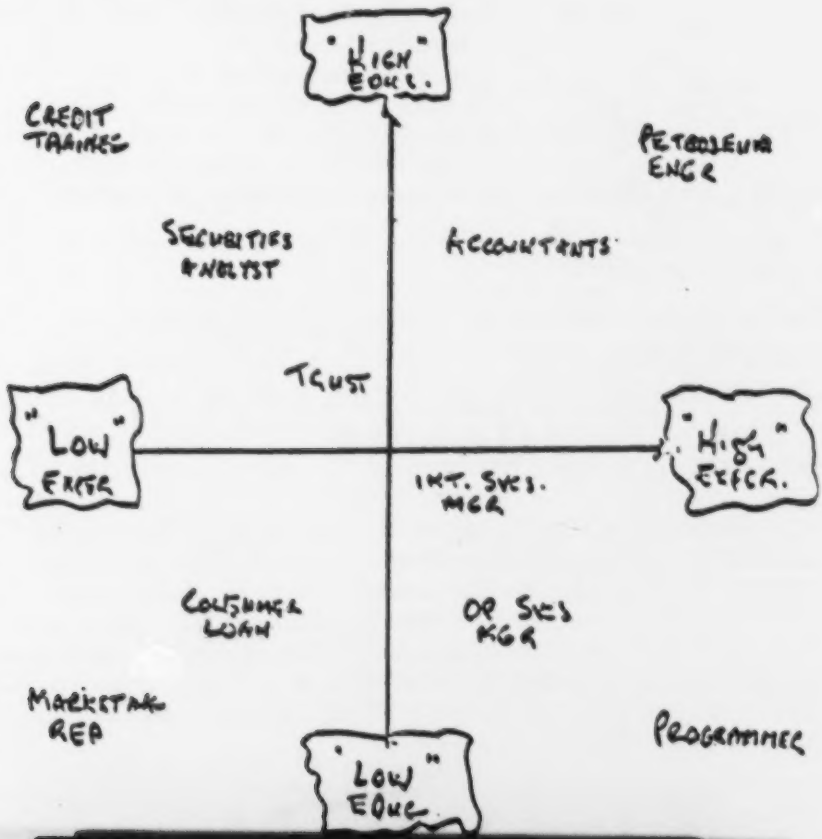
[214]Dr. Hofstedt presented the following chart showing the education/experience mix typically required in the Bank's more common job family groups:



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Republic's hiring policy and practice revealed "reasonable policies consistently applied." In his opinion, the Bank's qualifications for exempt jobs are realistic, not unreasonably high, not overly rigid in adherence to a particular degree requirement, tailored to a reasonable expectancy of satisfactory job performance, and sensitive to exceptional cases. Finally and most importantly, Dr. Hofstedt expressed his opinion that Republic's qualifications were necessary for the efficient conduct of its business, and that this was true across all exempt job families.

Although Dr. Hofstedt testified in some detail about the qualifications necessary for a variety of positions in banking, his principal testimonial focus, coinciding with his area of greatest expertise, was on requirements for the Bank's credit analysis program. He testified that commercial loan officers at a major bank require a mix of general training, specialized financial training, social skills, and mental orientation, of the type provided in a business-related undergraduate or graduate education. He testified that loan officers must deal on a day-to-day basis with corporate treasurers who have financial training, and that a large commercial bank's competitive edge lies in its loan officers' familiarity with national and international financial markets and their ability to construct intricate and innovative financial arrangements. He found Republic's requirement of productive work during the credit training program to be unusual, and estimated that it would require 1 to 1½ years of business-related education, exclusive of productive time, to train a liberal arts graduate in the technical skills necessary to be a loan officer. Dr. Hofstedt found a knowledge of micro-economics, finance, law, and taxation to be necessary to develop skills and vocabulary for the productive aspects of the credit training program.[215]

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[215] Margaret Bentsen, a commercial loan officer of the Bank and graduate of its credit training program, also testified that graduate level courses in banking and finance were very important for success in the program.

The impressive testimony of Dr. Hofstedt convinces the court that the occupational and educational weights used by Dr. Stoikov in her analysis of exempt hiring are job-related.[216] In particular, the Bank's heavy reliance on business-related experience or education in such fields as credit analysis and accounting has been shown to be justified in light of the demands of the jobs in those fields. Although Dr. Hofstedt did not testify specifically about the Bank's geographical recruiting patterns, no such testimony was needed: the geographical weights used for exempt positions are reasonable given the economic realities of recruitment for skilled professional positions, which were discussed in the testimony of several Bank officials.

The showing of job-relatedness renders the positive Z-score (+1.96) for 1975-78 female exempt hiring dispositive of liability for those years. The -1.88 figure for 1970-74 is more difficult to interpret. That result corresponds to a significance level of 6%, falling short of the customary 5% level. It must be remembered, however, that this result is obtained using the Bank's own availability figures. Any residual uncertainty in the degree to which the Bank's hiring criteria have been job-correlated would operate to bring this figure closer to the traditional 5% level.

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[216]Dr. Madden argues that "flow" figures should be used for occupational and educational availabilities, that is, the proportions of females and blacks among those newly entering a profession. Dr Stoikov's educational availabilities, which are based on the numbers of degree *recipients* in given years rather than the numbers of degree *holders* in those years, are flow statistics. Use of flow figures for occupational availabilities, however, would be inconsistent with the Bank's approach: the separation of those hired for their educational credentials from those hired for their experience is itself an effort to determine the proportion of Bank employees hired from the "flow" of new graduates from that hired from the "stock" of those already in the workforce. Those newly entering an occupation *are* accounted for under the Bank's procedure, by classification based either on the degree they have just received or the occupation they have just left.

Indeed, the overall Z-score is highly sensitive to small changes in the overall availability figure. Thus, for example, if the court were for some reason to reject the Bank's weighted average availability for, *e.g.*, petroleum engineers, (.0147) on the ground of an insufficient showing of job-relatedness, and to use instead the .388 availability of females in the D/FW SMSA, the overall Z-score would jump from -1.88 to -2.00, and 5% significance would be present. Mindful that use of the 5% significance level is a custom rather than a rigid rule to be mechanically applied without regard to the circumstances, *see* section IX(A), *supra*, the court is convinced that the sensitivity of the availability figures to minor flaws in job-correlation renders the result for 1970-74 statistically significant.

H. *Summary.*

In summary, the court finds that plaintiffs have established a *prima facie* case of hiring discrimination for black applicants for nonexempt positions during the period from 1969 through 1973 and for female applicants for exempt positions during the entire class period. That *prima facie* case was rebutted as to female exempt applicants in 1975 and later years. A Phase I finding of liability therefore exists for unsuccessful black applicants for nonexempt positions on or before December 31, 1973, and for unsuccessful female applicants for exempt positions on or before December 31, 1974.

X. *Terminations.*

The plaintiffs' statistical presentation on the issue of terminations consists of a table presented as part of the report of Dr. David Morgan. That table presents the numbers and proportions of blacks, females, and other groups in the Bank work force, juxtaposed with numbers and proportions of those groups terminated in general and for specific reasons. No calculations were presented to

show the statistical significance of these results. Relevant portions of these data appear in the margin.[217]

Dr. Morgan's data suffer from a fundamental flaw. No effort has been made to segregate involuntary terminations from voluntary terminations. As noted in *Markey* v. *Tenneco Oil Co.*, 439 F.Supp. 219, 243 (E.D. La. 1977), an employer "can only be held responsible for the employees that it discharged, not for those who left [the employer] of their own accord." While in an appropriate case a plaintiff might be able to show that the employer's other discriminatory conduct made life so intolerable for the group discriminated against as to amount to constructive discharge, no such showing has been made or attempted here. The standards applicable to proof of constructive discharge are rigorous, *see Miller* v. *Texas State Board of Barber Examiners*, 615 F.2d 650, 652 (5th Cir. *cert. denied*, 49 U.S.L.W. 3251 (1980); *Young* v. *Southwestern Savings & Loan Association*, 509 F.2d 140, 144 (5th Cir. 1975), and neither proof of wage discrimination, *Bourque* v. *Powell Electric Manufacturing Co.*, 617 F.2d 61 (5th Cir. 1980); *Cullari* v. *East & West Gateway Coordinating Council*, 457 F.Supp. 335, 341 (E.D. Mo. 1978), nor proof of promotion discrimination, *Muller* v. *United States Steel Corp.*, 509 F.2d 923, 929 (10th Cir.), *cert. denied*, 423 U.S. 825 (1975), is alone sufficient.

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[217]

Year	Total Terminations	Black Proportions		Female Proportions	
		Workforce	Terminations	Workforce	Terminations
1973	574	.139	.150	.634	.805
1974	584	.158	.216	.631	.795
1975	500	.149	.168	.619	.774
1976	488	.153	.186	.623	.738
1977	561	.168	.203	.639	.756
1978	302	.178	.245	.632	.772

This table is derived from Table 3.1 of Dr. Morgan's report (Plaintiffs' Exhibit 922).

In her post-trial brief, plaintiff Johnson presents a summary of 1969-72 involuntary termination data for black employees. Defendant urges that consideration of this summary by the court would be tantamount to the reception of new evidence after trial. This court considered and rejected a similar contention in *L.C.L. Theatres* v. *Columbia Pictures Industries, Inc.*, 421 F.Supp. 1090, 1103 & n.9 (N.D. Tex. 1976), *rev'd in part on other grounds*, 566 F.2d 494 (5th Cir. 1978). The summary in question contains nothing more than termination data contained in a computer printout (Plaintiffs' Exhibit 121) introduced into evidence, together with numbers and percentages of blacks in the Bank's work force, derivable (albeit with minor discrepancies) from the Bank's EEO1 reports (Plaintiffs' Exhibits 511 *et seq.*). The assembly of the data in summary form is so straightforward a procedure that exposure to the adversary process would have shed little additional light here.

Although properly before the court, this summary does not satisfy the plaintiffs' *prima facie* burden on the termination issue. As with Dr. Morgan's summary, no calculations of statistical significance are presented.[218] While the Supreme Court in *Hazelwood School District* v. *United States*, 433 U.S. 299, 311 n.17 (1977), avoided the suggestion "that precise calculations of statistical significance are necessary in employing statistical proof," the fact remains that a plaintiff must present at least some evidence that statistical disparities are not due to chance. D. Baldus & J. Cole, *Supra* n.55, § 1.231, at 48, *see MacRae* v. *McCormick*, 458 F.Supp. 970, 980-81 (D.D.C. 1978) (evidence of disparity without any evidence of statistical significance "of little probative value"). Where the sample sizes are as small as in the plaintiffs' summary (11 to 21 blacks terminated

[218]Indeed, it is arguable that calculations of statistical significance in such a summary *would* constitute the introduction of new evidence, since no testimony at trial established the appropriate statistical techniques to be used in evaluating terminations. *See* section V(C), *supra*.

per year out of 72 to 112 total involuntary terminations), the possibility of a chance result cannot easily be discounted absent calculation of Z-scores, randomness ranges, or other appropriate statistical measures of disparity. *See* D. Baldus & J. Cole, *supra* n.55, §§ 9.1 & 9.12; *cf Mayor of Philadelphia* v. *Educational Equality League*, 415 U.S. 605, 621 (1974) (concern for smallness of sample presented by 13-member panel "well founded").[219]

XI. *Terms and Conditions*

In addition to their challenges to the Bank's hiring, initial placement, promotion, compensation, and termination of its employees, the plaintiffs raise a variety of challenges to what may loosely be termed the "terms and conditions" of their employment. These challenges relate to several specific practices not directly related to the employees' economic welfare. Each such challenge will be discussed in the sections which follow.

A. *Departmental Segregation.*

The plaintiffs assert that the Bank has followed a practice of relegating blacks and females to certain undesirable departments, often inconspicuous to the public. In support of this allegation, they rely on several statistical "snapshots"

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[219]Because the court has found that plaintiffs failed to establish a *prima facie* case of termination discrimination, it is unnecessary to discuss in detail the Bank's rebuttal effort on the termination question. In sum, that effort consisted primarily of a report (Defendant's Exhibit 31) by Drs. David Snyder and Ross Stolzenberg and testimony by Dr. Stolzenberg. Those experts performed a multiple regression using as the dependent variable the probability of being involuntarily terminated and a variety of education, experience, and skill measures as independent variables. Separate regressions were run for all nonexempt employees, for nonexempt employees outside the general clerical job families, and for nonexempt general clerical employees. Although the dummy variable for race was statistically significantly positive before explanatory variables were added to the regression, no statistically significant coefficients for race or sex were obtained when controls were added for such variables.

of the Bank workforce, broken down by race, sex, and department,[220] together with anecdotal evidence of the distribution of blacks and females in various departments as viewed by individual witnesses as they walked through the Bank. The court finds the latter evidence to be too sporadic and incomplete to lend any support to the departmental segregation allegations.

At the outset, it is necessary to distinguish departmental segregation from other forms of alleged discrimination. The initial placement and promotion analyses are all concerned with vertical segregation: the assignment of females or blacks to lower-level jobs in a discriminatory fashion and discriminatory barriers to their upward movement. Departmental (*i.e.*, horizontal segregation relates to assignment of employees at given (vertical) job levels to departments on the basis of their race or sex. Since disproportionate pay is an indicator of *vertical* discrimination, the harm caused by departmental segregation is usually noneconomic in nature. *See James* v. *Stockham Valves & Fittings Co.*, 559 F.2d 310, 333 (5th Cir. 1977), *cert. denied*, 434 U.S. 1034 (1978); *Swint* v. *Pullman-Standard*, 539 F.2d 77, 92-93 (5th Cir. 1976).

The various departmental snapshots relied upon by the plaintiffs are inadequate to establish a *prima facie* case of departmental segregation. These snapshots show disparities between the proportions of blacks and females in the Bank

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[220] The following Plaintiffs' Exhibits show the racial and sexual makeup of the Bank's departments:

Exhibit	Date	Description
631	12/8/72 & 12/5/73	"minorities" by division & section
632	12/8/72 & 12/5/73	"minorities" by division & section
634	7/15/74	by division
635	7/15/74	exempt by department or function
638	4/30/75	by department
745_1–749_1	4/30/75	cumulative of #638
742_1–743_1	7/16/76	race by some departments

workforce and the corresponding proportions in various departments, but such disparities are not alone sufficient. *Swint* v. *Pullman-Standard*, *supra*, at 94-95 & n.40; *Lee* v. *City of Richmond*, 456 F.Supp. 756, 770 (E.D. Va. 1978). No calculations of statistical significance are provided. Thus the court cannot determine whether the disparities shown are due to segregation, to differences in job mixes among the departments, or to chance. Gross examination of departmental racial and sexual proportions reveals no obvious instances of gross disparity. In the most useful of the "snapshot" exhibits (Plaintiffs' Exhibit 638), departmental proportions of females range from 37.5% to 63.5%, compared to an overall proportion of 58.9%.[221] With the exception of

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[221]The following table shows the relevant proportions as of April 30, 1975:

Department	Total Employees	% Female	% Black
Credit Administration	92	43.5	7.6
Correspondent	64	59.4	6.3
Executives	43	0.0	0.0
Finance and Administration	1215	63.5	22.6
Funds Management	45	51.1	2.2
International	96	52.1	0.0
Metropolitan	231	58.4	8.7
Petroleum	32	37.5	3.1
Real Estate	49	53.1	2.0
Republic of Texas Corp.	114	57.0	13.1
Staff	31	58.1	3.2
Trust	337	61.7	5.3
United States	59	54.0	0.0
Total	2408	58.9	14.2

The data in this table were taken from Plaintiffs' Exhibit 638. The group designated "Executives" does not compirse (sic) a separate department, but includes top-level management in a variety of departments.

two departments, all departments contain blacks, with proportions ranging from 2.0% to 22.6% against an overall proportion of 14.2%. While there is some evidence of a concentration of blacks in the Finance & Administration Department, this is probably the product of a differing mix of skilled and unskilled jobs between that department and other departments, and does not establish that blacks of a given level of qualification are being shunted into that department. Absent a showing of historical segregation or any of the other factors identified in *Swint* v. *Pullman-Standard*, *supra*, as adjuncts to statistical evidence of departmental segregation, plaintiffs have failed to present a *prima facie* case of horizontal segregation.

The failure of plaintiffs to establish a *prima facie* case renders detailed discussion of the Bank's rebuttal effort unnecessary. Dr. Stolzenberg performed a regression study to measure the effects of race and sex on the quality of Bank employment as perceived by its employees. Eleven questions were asked of a sample of Bank employees, the responses coded on a scale of 1 to 4, and regressions performed using race, sex, and length of Bank employment[222] as independent variables and individual question response and aggregate satisfaction levels as the dependent vari-

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[222]The theory behind inclusion of this variable was that dissatisfied employees would be apt to leave the Bank more rapidly than satisfied employees.

ables.[223] Additional regressions were run with controls for the proportion of blacks and females in the respondent's department.[224] While these results show that blacks more

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[223]The results of these studies were as follows:

Question	Race Coefficient	Sex Coefficient
The hours are good.	.033	.129
Travel is convenient.	.443*	.147
The physical surroundings are pleasant.	.159	—.129
I can forget my personal problems.	—.141	.112
The work is interesting.	—.243*	.035
I can see the results of my work.	.163	.013
The problems I can expected to solve are hard enough.	—.418*	—.036
I have enough information to get the job done.	.095	.035
I receive enough help and equipment.	—.016	.154
I have enough authority.	.374*	.186*
My responsibilities are clearly defined.	.212	.273*

*Statistically significant at the .05 level.

These questions were taken from the University of Michigan/ Department of Labor Quality of Employment Survey. *See* R. Quinn, T. Mangione, & S. Seashore, *1972 Quality of Employment Survey* (1975).

The data in this table were taken from Table 3 of Dr. Stolzenberg's report (Defendant's Exhibit 30).

[224]Coefficients for race and sex are 1.162 and 1.379, respectively, with the sex coefficient statistically significant at the .05 level. *See* Table 4 of Dr. Stolzenberg's report (Defendant's Exhibit 30).

often perceive their work to be dull and their tasks to be too easy, they also show that blacks and females are more likely to believe themselves to have enough authority, that blacks are more likely than whites to find travel convenient, and that females are more likely than males to find their responsibilities to be clearly defined. No consistent pattern of racial or sexual dissatisfaction is shown. The overall coefficients for race and sex are positive, and the sex coefficient is statistically significant, indicating greater overall satisfaction (at least according to this measure) for females than for males.[225]

B. *Maternity Leave.*

The Bank's maternity leave policy has varied widely during the period covered by this lawsuit. Prior to 1971, regular full-time employees with three years' service were eligible (in their supervisors' discretion) for a six-month unpaid leave beginning at the end of the sixth month of pregnancy. Since 1979, all regular full-time employees may receive paid leave, with starting and ending dates flexible depending on the employee's physical condition as evaluated by her doc-

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[225]The Bank also relies on a series of workforce utilization studies by Dr. Odell, wherein numbers of blacks and females in a variety of departments and a variety of job families were compared with their respective availabilities. These results are not relied upon for a variety of reasons discussed in greater detail elsewhere:

(1) Zero is part of the randomness range in virtually all cases. *See* sections VIII(A)(2)(i) and (iii) and IX(G), *supra.*

(2) The extreme disaggregation destroys statistical significance. *See* sections VIII(A)(2)(i) and (iii) and IX(G) at n.——, *supra.*

(3) The geographical markets used have not been fully justified. *See* sections VIII(A)(2)(iii) and IX(F)(2), *supra.*

(4) The 100% occupational weighting has not been shown to be job-related. *See* sections IX(F)(1) and IX(G), *supra.*

tor. Between these years, a variety of hybrid policies has been in effect.[226]

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[226]The Bank's maternity leave policies are summarized in the following table:

Years	Service Req't	Supvr. Approval	Departure Date	Duration
pre-1971	3 years	yes	end of 6th	6 months
1971-74	6 months	yes	"normally" 6 months; based on attending physician's statement	flexible; max. shorter of 6 months or 3 months after delivery (Notes 1,2,3)
1974-79	none	no?	based on attending physician's statement	same (Notes 1,2,3)
1979 to present	none	no	determined by attending physician	same (Note 1?) (Notes 2,4)

Years	Benefits	Pay	See Exhibits
pre-1971	full?	no	PX580 (p.16) PX598
1971-74	full	no	PX579 DX465 (pp.54-58) PX736-40
1974-79	full	no	DX359 (pp.54-58) PX1300
1979 to present	full?	yes	DX345

Note 1: Unless physician's statement indicating that return is not advisable is submitted to the Bank.
Note 2: Must present physician's statement that there is no danger involved in returning to work.
Note 3: Must give reasonable notice ("probably 30 days").
Note 4: Must give three weeks' notice.

See Testimony of Thomas Barksdale.

Although the plaintiffs' claims are not specific, it appears that the plaintiffs attack these policies in five respects:

(1) That maternity leave was without pay until 1979.

(2) That seniority does not accrue during maternity leave.

(3) That the grant of maternity leave was subject to length-of-service requirements until 1974.

(4) That maternity leave was required to begin at a predetermined stage of pregnancy until 1971.

(5) That maternity leave was fixed at a six-month duration until 1971.[227]

These challenges will be discussed *seriatim*.

The plaintiffs' challenge to the Bank's failure to pay sick pay to employees on maternity leave, while providing sick pay to those with other disabilities, is foreclosed by *Nashville Gas Co.* v. *Satty*, 434 U.S. 136, 143-45 (1977). Relying on *General Electric Co.* v. *Gilbert*, 429 U.S. 125 (1976), the Court in *Satty* held that provision of sick pay for most disabilities, but not for pregnancy-related disabilities, did not violate Title VII absent a showing by the plaintiff that such a denial is a "pre-tex[t] designed to effect an invidious discrimination against the members of one sex." 434 U.S. at 144, *quoting from General Electric Co.* v. *Gilbert*, *supra*, at 136. No such showing has been made or attempted here. While Title VII was amended effective October 31, 1978, to effectively overrule *Gilbert* and *Satty*, *see* 42 U.S.C. § 2000e(k), the Bank has since approximately that time provided sick pay for pregnancy on the same basis as other disabilities.

The Court in *Satty* distinguished the provision of economic benefits, such as sick pay and insurance coverage, as to which an employer is not required to treat pregnancy

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[227]No challenge is made to the requirement of the supervisor's approval, effective until 1974. Indeed, no such challenge could successfully be made, since the supervisor's approval was required for all other forms of disability leave as well.

in the same manner as other disabilities, from the assessment of penalties or burdens, such as denial of accumulated seniority, as to which an employer must give equal treatment to pregnancy-related disability. Unlike the situation in *Satty*, however, Bank employees retain accumulated seniority when they take maternity leave. While it is true that additional seniority does not accrue during the actual period of leave, the plaintiffs have failed to show that this policy is different from that applied to males on sick leave (disparate treatment) or that it causes females to lose more seniority due to disability than males (disparate impact). *See Harriss* v. *Pan American World Airways, Inc.*, 437 F.Supp. 413, 437 (N.D. Cal. 1977).

Until 1971, the Bank limited maternity leave to employees with three years' service. In 1971, this requirement was shortened to six months on advice of counsel. In 1974, the service requirement was eliminated altogether. Although there was no specific policy on non-pregnancy sick leave, beginning in 1971 a "guideline" limited sick leave to those with six months' service.

Denial of leave to those with little seniority, with a corresponding likelihood of termination due to pregnancy disability, is more closely akin to denial of accumulated seniority (a burden) than to denial of pay or insurance coverage (an economic benefit). *See Harper* v. *Thiokol Chemical Corp.*, 619 F.2d 489, 491 (5th Cir. 1980) (same for unjustified refusal to allow employee on maternity leave to return to work). The EEOC has ruled since 1970 that service requirements applicable to maternity leave but not to other types of leave violate Title VII. EEOC Decision No. 72-562, [1970] EEOC Dec. ¶ 6184 (two-year requirement for maternity leave but not for other leave illegal in absence of legitimate business considerations justifying such a requirement); *see* EEOC Decision No. 72-1919, [1972] EEOC Dec. ¶ 6370 (one-year service requirement, not applicable to other leaves, violative of Title VII by virtue of disparate impact); *cf.* EEOC Decision No. 74-68, [1973] EEOC Dec. ¶6422 (same where no leaves granted to dis-

abled employees with less than one year's service); 29 C.F.R. § 1604.10(b). *See generally* Annot., 27 A.L.R. Fed. 537, § 3[b] (1976).

The Bank has relied on two opinions of the EEOC which its counsel believed in 1970 authorized differing length-of-service requirements for maternity leave and other types of leave. On October 17, 1966, the General Counsel of the EEOC stated:

> In a recent opinion letter regarding pregnancy, we have stated "The Commission's policy in this area does not seek to compare an employer's treatment of illness or injury with his treatment of maternity since maternity is a temporary disability unique to the female sex and more or less to be anticipated during the working life of most women employees."

General Electric Co. v. *Gilbert*, *supra*, at 142. A similar statement in a November 15, 1966, opinion was relied upon by the Bank's counsel in a 1970 opinion letter upholding differential length-of-service requirements. *See* Plaintiffs' Exhibit 738. It must be noted, however, that both these EEOC opinions arose in the context of salary continuation — an economic benefit. Indeed, the latter opinion states: "[G]enerally speaking, a leave of absence should be granted for pregnancy *whether or not it is granted for illness.*" (Emphasis supplied). While this statement goes beyond the position ultimately adopted by the Supreme Court in *Satty*, it does serve to distinguish the provision of leave from payment of salary during leave. Nor may the Bank find comfort in a February 20, 1967, opinion also relied upon by its counsel: that opinion holds only that "where it is an employer's policy to deny leave of absence to *any* employee with less than twelve months' service, it is not a violation of Title VII to deny maternity leave pursuant to this policy." *See* Plaintiffs' Exhibit 738 (emphasis supplied). While the Bank may have relied in all good faith on the opinion of its counsel (although the policy was changed in any event shortly after that opinion was

issued), the opinion cannot insulate the Bank from liability for discrimination later found to have been unlawful.

It follows that Phase I liability has been established for all females denied maternity leave for failure to meet the three-year service requirement.[228] The presumption of discrimination created by this finding can of course be rebutted: in Phase II, the Bank may attempt to show the existence of a *de facto* service requirement applicable to other types of disability leave during the early years, thereby vitiating liability for differential treatment of maternity leave in individual cases.[229]

While the Bank argues that it had no inflexible requirement that maternity leave begin at the end of the sixth month of pregnancy, this contention is supported by the evidence only for the 1971-74 and later periods. A 1967 personnel manual states that leave "will start" at the end of the sixth month, with no provision for exceptions. Plaintiffs' Exhibit 580, at 16; *see* Plaintiffs' Exhibit 598. Courts are virtually unanimous that a policy requiring leave to be taken at a specific stage of pregnancy violates Title VII where the employer cannot justify such an absolute standard. *Berg* v. *Richmond Unified School District*, 528 F.2d 1208, 1213 (9th Cir. 1975), *vacated on other grounds*, 434 U.S. 158 (1977), *vacated on other grounds*, 572 F.2d 709 (9th Cir. 1978); *Fabian* v. *Independent School District No. 89*, 409 F.Supp. 94, 100 (W.D. Okla. 1976); *Stansell v. Sherwin-Williams Co.*, 404 F.Supp. 696, 702 (N.D. Ga. 1975); *Vineyard* v. *Hollister Elementary School District*, 64 F.R.D. 580, 583 (N.D. Cal. 1974); *Singer* v. *Mahoning*

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[228]The post-1971 policy does not violate Title VII, since the six-month requirement corresponds to a similar guideline for non-pregnancy sick leave. There has been no showing that a six-month service requirement for disability leaves has any disparate impact on any part of the class.

[229]For example, if all disability leaves were subject to a six-month requirement, females with less than six months' service have not been discriminated against. Of course, the burden of proving this circumstance will be on the Bank.

County Board of Mental Retardation, 379 F.Supp. 986, 988-89 (N.D. Ohio 1974), *aff'd*, 519 F.2d 748 (6th Cir. 1975); *Newmon* v. *Delta Air Lines, Inc.*, 374 F.Supp. 238, 244-45 (N.D. Ga. 1973); EEOC Decision No. 75-095, [1974] EEOC Dec. ¶ 6444; EEOC Decision No. 74-112, [1974] EEOC Dec. ¶ 6428; EEOC Decision No. 73-0520, [1973] EEOC Dec. ¶ 6389. *But see de Laurier* v. *San Diego Unified School District*, 9 Empl. Prac. Dec. ¶ 9893 (S.D. Cal. 1974) (mandatory eighth-month leave permissible although mandatory fifth month leave would be impermissible), *aff'd on this point*, 588 F.2d 674 (9th Cir. 1978). *See generally* Annot., 27 A.L.R. Fed. 537, §§ 4[a], [b] & [c] (1976).[230] Hence Phase I liability is established for all females forced to begin leave at an arbitrary stage of pregnancy.[231]

Finally, the plaintiffs complain of the six-month durational limitation in effect until 1971.[232] Such a policy, if not applied to other forms of disability leave, would violate Title VII. *Wetzel* v. *Liberty Mutual Insurance Co.*, 511 F.2d 199, 207-08 (3rd Cir. 1975), *vacated on other grounds*, 424 U.S. 737 (1976); *Vineyard* v. *Hollister Elementary School District*, *supra*; EEOC Decision No. 75-095, *supra*; *see* 29 C.F.R. § 1604.10(b). *See generally* Annot., 27 A.L.R. Fed.

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[230]The Bank appears to have relied on a pre-1970 EEOC ruling that "[a]n employer is justified in requiring all pregnant female employees to take a maternity leave of absence 90 days prior to delivery." *See* Plaintiffs' Exhibit 736. While it is unfortunate that this early EEOC opinion failed to accurately predict the development of the law, the Bank cannot rely on the erroneous opinion as a defense to liability for conduct which the courts (and, for that matter, the EEOC) have since held to be unlawful.

[231]After 1971, the Bank permitted a flexible commencement date based on a doctor's recommendation. Such a policy, fairly administered, would not violate Title VII. *Maclennan* v. *American Airlines, Inc.*, 440 F.Supp. 466 (E.D. Va. 1977). Moreover, it corresponds roughly to the discretionary policy applied to other types of disability leave. No showing has been made that the flexible maternity leave commencement policy has been operated in a discriminatory manner.

[232]Since 1971, maternity leave has been extendable where the employee's physician certifies that return is not advisable.

537, § 4[d] (1976). The plaintiffs have produced no evidence, however, that a different policy applied to other types of sick leave. This being the case, no liability is established as to the durational requirement.

C. *Marriage Policy.*

The Bank has at various times followed a policy of declining to hire close relatives of existing employees, and of requiring the resignation of one spouse if two existing employees married. If two employees each having three years' seniority married, the Bank reserved a discretionary right to require one spouse to resign, and in any event assigned the spouses to different departments. *See* Plaintiffs' Exhibit 734 & 735. The plaintiffs have shown no disparate impact of this facially neutral policy.

D. *Training.*

The Bank provides or has provided a variety of training and educational programs through the years. These include in-house programs, such as a variety of personal development courses, specialized skill courses, and American Institute of Banking courses, and outside programs, such as a tuition assistance program. Detailed discussion of these programs is unnecessary: with two exceptions, these programs were administered in a race- and sex-neutral manner. No disparate impact of any program requirements has been shown.

The court has found that females were discriminated against in exempt hiring through 1974, section IX(H), *supra*, and that various groups suffered initial placement or promotion discrimination, section VIII(C), *supra*. To the extent that discrimination prevented individuals from entering the credit training program, the Bank will be liable as part of the hiring and placement/promotion cases.

At various times throughout the class period, the Bank has offered personal development courses entitled "Personality, Appearance, and Personal Attitude" and "Image for

Success." The former course, designed for females and attended exclusively by females' emphasized personal appearance and manner.[233] While attendance was strongly recommended for some employees, no employee was ever required to attend. The latter course, which focused on personal image through appearance, mental attitude, and communicative skills,[234] was attended primarily (and exclusively during the earlier years) by males.

While the court must find that the sexual segregation of these courses constituted a violation of Title VII, any economic harm caused thereby must be characterized as *de minimis*. Each course constituted at best a minor aspect of

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[233]The Bank described the course as follows:

PURPOSE: To demonstrate the effects of personality traits, personal appearance and attitudes on individual behavior, and the correlation between improvements in these factors and improved relations with employees and customers. *CONTENT:* Twelve hours of presentations, demonstrations, and classroom participation. One half of the program is devoted to personal appearance. The second half emphasizes the inner self and shows participants how to combine outward appearance with an attitude of concern for others, resulting in fruitful personal reltations [sic].

Plaintiffs' Exhibit 791.

[234]The Bank described the course as follows:

PURPOSE: Based on the Bank's philosophy that its success is built on individual successes at every level of capability and experience, this program provides ideas and hard facts which affect your image with others and, therefore, your potential for personal effectiveness or success. *CONTENT:* Specific subjects covered are: *Success and Image*. Shows how your own image with others affects your changes for success. *The Way You Communicate*. Successful correspondence, conversation, and conference conducting, depend upon the same basic techniques. *The Way You Sound*. What you say and how you say it reflects your total personality. *The Way You Feel*. Fitness, health and hygiene combine to optimize your effectiveness. *The Way You Are*. Your attitudes toward yourself, your job, and your fellow employees are reflected in your image. *The Way You Look*. The correct wardrobe and styling for you improves your overall appearance.

Plaintiffs' Exhibit 791.

the Bank's overall training program. Bank officials testified that attendance at the courses was not considered in evaluating any employee for promotion. The courses were short (approximately twelve class hours), and content for the male and female courses was similar. While the "Image for Success" course seems to have included a wider variety of interpersonal skills, there is no indication that females were thereby deprived of substantial employment opportunities.[233] Finally, the two courses were merged in 1973, obviating the need for any prospective injunctive relief.

E. *Dress.*

The court finds no systematic discrimination in the application or enforcement of any dress requirements.

F. *Summary.*

In summary, Phase I liability for discriminatory terms and conditions of employment is found only as to certain aspects of the Bank's maternity leave policy. Phase I liability exists as to those female employees denied maternity leave for failure to meet the three-year service requirement, and those female employees forced to begin maternity leave at an arbitrary stage of pregnancy.

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[233]The plaintiffs also complain that the "Personality, Appearance, and Personal Attitude" course was geared toward the personal appearance of white females, constituting racial discrimination in violation of Title VII. While this fact is likewise unfortunate, the harm caused thereby is, like that caused by the sexual segregation of the courses, too speculative to merit relief.

CONCLUSION

This opinion has been written and rewritten, or equally accurate, has been calculated and recalculated, over the past year. It is modular in structure but hopefully possessed of sufficient internal consistency to squeeze as a whole into a traditional suit of judicial opinion. Even if that effort was successful, it has to judicial eyes a surrealistic cast, mirrowing the techniques used in its trial. Excursions into the new and sometimes arcane corners of different disciplines is a familiar task of American trial lawyers and its generalist judges. But more is afoot here, and this court is uncomfortable with its implications. This concern has grown with the realization that the esoterics of econometrics and statistics which both parties have required this court to judge have a centripetal dynamic of their own. They push from the outside roles of tools for "judicial" decisions toward the core of decision making itself. Stated more concretely: the precision-like mesh of numbers tends to make fits of social problems when I intuitively doubt such fits. I remain wary of the siren call of the numerical display and hope that here the resistance was adequate; that the ultimate findings are the product of judgment, not calculation.

We know the mathematical techniques also may be freighted with collateral consequences, some antithetical to the aims of the legislation being enforced. For example, we blink at reality when we say that ratios and quotas are not being reinforced when liability is heavily hinged upon "disparities" and deviations from numerical examplers. And the techniques of this suit highlight our present social conundrum of nourishing ethnicity in an effort to starve it.

There is a tendency to turn these suits into morality plays as indeed they can be. Here the story is not of good people versus bad people but of an employer caught by changing social order, ponderous in response, but now running hard to get in line.

One school of jurists would hold that we ought privately to resolve the close questions and write an opinion whose

public face belies a nonexistent confidence with a blurring of decisional juncture points. I acknowledge the utility of that approach in given cases, but not here. I write this unusual conclusion to this unusual opinion to make plain that this court did not select a numbers field for this contest but instead has been forced to judge a fight, there fought.

To place the court's findings in perspective, an additional observation is required. Despite their recent recognition, the econometric techniques employed in this case are not discrimination CAT scanners — ready to detect alien discrimination in corporate bodies. It may reveal shadows but its resolution is seldom more precise.

Ultimately the findings of fact here are not numerical products and sums but a human judgment that the facts found are more likely true than not true. With that standard, stripped to essentials, and within the decisional limits placed upon me by higher courts, this is what I think happened, approximately.

Entered this 22nd day of October, 1980.

/s/ PATRICK E. HIGGINBOTHAM

PATRICK E. HIGGINBOTHAM
U.S. District Judge

APPENDIX F

UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF TEXAS
DALLAS DIVISION

JOAN RANCE VUYANICH
and ELIZABETH J. KING
v.
REPUBLIC NATIONAL BANK
OF DALLAS — CA-3-6982-G

and

ELLEN JOHNSON
v.
REPUBLIC NATIONAL BANK
OF DALLAS — CA-3-7949-G

April 25, 1979

MEMORANDUM OPINION & ORDER

I.

Plaintiff Joan Rance Vuyanich filed this suit on March 22, 1973, alleging Republic National Bank discriminated against her on the basis of race and sex. On November 7, 1974, Judge Mahon certified a broad class of women and blacks. Ellen Johnson filed her suit against the defendant on December 3, 1973. After a two-day evidentiary hearing, this court consolidated the Vuyanich and Johnson cases and on March 15, 1978, redefined the class as follows: all females of all races and all blacks of either sex (1) who are or have been employed by the Republic National Bank on or after February 16, 1969, or (2) who applied for employment but were not hired at the Republic National Bank on or after February 16, 1969, to date. The court then set a program for further pretrial events that contemplated further review of the class certification after substantial discovery.

At the anticipated time, the Bank moved to decertify the class or, alternatively, to redefine it more narrowly. Plaintiffs oppose the decertification or redefinition and have proposed the intervention of six additional class members.[1] This opinion and order will address both the Bank's motion and the proposed interventions.

II. STANDING

The Bank contends that Article III of the United States Constitution mandates a redefinition of this class. It argues that a class representative only has standing to raise those class claims that she would be able to assert individually. In other words, it submits that the class device cannot extend the court's jurisdiction to claims of class members unless the named plaintiff has standing to assert those very claims. Defendant's contention is unsound for it is too broad. The Bank's premises are bottomed on a confusion of the requirements of Article III with those of Rule 23.

Article III, Section 2 of the Constitution, both grants and limits judicial power. It provides:

> The Judicial Power shall extend to all cases, in law and equity, arising under this Constitution [and] the laws of the United States . . .; to controversies . . . .

Inhering in "cases" and "controversies" are duel and complementary limitations which go to the very heart of our constitutional form of government. *Flast* v. *Cohen*, 392 U.S. 83, 94 (1968). Those words limit the judiciary to consideration of questions "presented in an adversary context and in a form historically viewed as capable of resolution through the judicial process." They also ensure that the courts will not trespass into areas reserved for the legislative and executive branches of government. *Id* at 95.

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[1]Portia Williams, Dorothy Hooks, Martha Davis, Elizabeth King, Marisu Fenton, and Marjorie Jackson have so moved. On August 24, 1977, the motions to intervene filed by Portia Williams and Dorothy Hooks were denied. The court in this order will reconsider that ruling.

Standing, one of several aspects of justiciability,[2] focuses on the party bringing the suit. *Id.* Under Article III, that party must "allege[ ] such a personal stake in the outcome of the controversy as to assure that concrete adverseness which sharpens the presentation of issues . . . ." *Baker* v. *Carr*, 369 U.S. 186, 204 (1962). Absent that injury in fact, the court lacks the power to entertain the suit.

At least one entity before the court must satisfy this injury in fact requirement. The only entity before the court at the inception of a class action is the class representative. Thus the court's threshold inquiry must be whether the named plaintiff alleges a sufficiently personal stake in the litigation's outcome to permit his invocation of the court's power. If he does not assert that he as an individual suffered a concrete injury, then the court's inquiry must cease. In *O'Shea* v. *Littleton*, 414 U.S. 488 (1974), the class representative complained that the defendants engaged in a continuing course of conduct under color of state law consisting of illegal bond setting, sentencing and jury fee practices which allegedly violated the constitutional rights of the class members. Because none of the named plaintiffs alleged that he had suffered any injury from these practices, however, the court found that the representatives lacked standing. "If none of the named plaintiffs purporting to represent a class establishes the requisite of a case or controversy with the defendants, none may seek relief on behalf of himself or any other member of the class." *Id.* at 494. *See Bailey* v. *Patterson*, 369 U.S. 31, 32-33 (1962).

Only after the court has undertaken a Rule 23 analysis and has certified the class does the class become a jural entity, independent of the representative. *See Sosna* v. *Iowa*, 419 U.S. 393 (1975). Once certified, the class too must assert a concrete injury. Requiring injury to the class

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[2]Justiciability may also focus on whether the issue raised is a political question, whether the parties are asking for an advisory opinion, and whether the matter is moot. *Flast* v. *Cohen*, *supra*, 392 U.S. at 95.

is a direct by-product of the class' jural independence. For example, if after the class has been certified it is determined that in fact the class representative lacked standing, the certified class itself has standing to maintain the appeal. Thus in *Rizzo* v. *Goode*, 423 U.S. 362 (1976), the Supreme Court found that the class representatives lacked Article III standing to sue. Rather than stopping its analysis at this point, the court noted that the case was not before it on the pleadings — the class had been certified. It then proceeded to examine the merits of the case. Similarly, in *Sosna* v. *Iowa*, *supra*, the court recognized that a class, once certified, gains an independent stature which the mootness of the representative's claim could not affect. The Fifth Circuit in its decisions, has also looked both to the class representative and to the class in its inquiry into standing. In *Payne* v. *Travenol Laboratories, Inc.*, 565 F.2d 895 (5th Cir. 1978), the class representatives who met the employer's requirement of a tenth grade education at the time suit was filed were found to lack standing to attack that rule. Significantly, when the circuit considered the case, the class had already been certified. The court looked to both the named plaintiff and the certified class to determine standing. The class was explicitly defined so as to exclude those people who lacked tenth grade education. There were thus no circumstances under which that requirement could have caused either the plaintiffs or any member of the class the "distinct and palpable injury" that Article III requires. Finding that neither could possibly have suffered the claimed injury, the court held that Article III's requirements were not satisfied.

For meaningful analysis, this question of whether the entities before the court satisfy Article III's requirement of an injury in fact ought to be separate from and should not be confused with the inquiry into the relationship between the class representative and the putative class. Although courts sometimes mistakenly analyze the link between the representative and the putative class in Article III terms, that relationship is defined by Rule 23. This analysis is implicit in both *East Texas Motor Freight Systems, Inc.*

v. *Rodriquez*, 431 U.S. 395 (1977) and *Satterwhite* v. *City of Greenville*, 578 F.2d 987 (5th Cir. 1978), two cases on which the defendant relies.

In *Rodriquez*, three Mexican-American city truckdrivers charged that their employer's no-transfer and seniority policies amounted to racial and ethnic discrimination in violation of Title VII. These three city truckdrivers asserted this claim on behalf of all blacks and Mexican-Americans whom the defendant had denied equal employment opportunities. Because the three city truckdrivers failed to move for class certification and stipulated that the only claim before the court was the employer's rejection of their applications for transfer, the trial court dismissed the class allegations. Finding that the three city truckdrivers were not qualified for the over-the-road job they wanted and that the no-transfer seniority practices were proper business practices applied without discriminatory purpose, the trial court denied the individual claims for relief. Thus at the time of appeal to the circuit, no class had been certified and the three proffered class representatives had not been injured by the practices the putative class complained of.

On appeal, the Fifth Circuit reversed. It certified a class of Mexican-American and black city driver employees covered by certain collective bargaining agreements and found unlawful the company's no-transfer rule.

The Supreme Court then reversed the circuit decision and held that the court of appeals had erred in certifying the class. Significantly, it did not address the standing of the representatives to raise the class claims. Rather it focused on the inability of the named plaintiffs under Rule 23 adequately to represent the putative class. The court emphasized that because the trial court had found them unqualified for transfer, the plaintiffs were not members of the class they purported to represent. Having suffered no injury from the alleged discriminatory practice, they were "simply not eligible to represent a class of persons who did allegedly suffer injury," and thus were inadequate repre-

sentatives under Rule 23(a). *Id.* at 404. The court further found the representatives inadequate because they had failed to move for class certification and because their demand for a merger of two collective bargaining units conflicted with a vote by members of the class rejecting just such a merger. It is thus in the context of Rule 23's requirement of fair and adequate representation that the court's language that a class representative must "possess the same interest and suffer the same injury as the class members" must be read.

Satterwhite presents a comparable analysis. In that case, as in *Rodriquez*, the trial court refused to certify the proposed class, then dismissed the plaintiff's claim on the merits. The Fifth Circuit panel affirmed on the merits as to her individual claim but reversed the denial of class certification. En banc, the Fifth Circuit vacated the panel decision. As in *Rodriquez*, the court measured the plaintiff's ability to represent the purported class not against the requirements of Article III, but against the criteria of Rule 23.[3] Never having suffered an injury "either in common with the class or otherwise," the plaintiff was not a member of the class she sought to represent. Her claim was not typical of the class and her representation inadequate. The court stated:

> [H]er lack of nexus with, and membership in, the class is fatal. 578 F.2d at 992.

In a class action, then, the trial court initially must address whether the named plaintiffs have standing under Article III to assert their individual claims. If that initial test is met, the court must then scrutinize the putative class and its representatives to determine whether the relationship between them is such that under the requirements of Rule 23 the named plaintiffs may represent the class. The trial court generally need not address the final question of whether the class itself, after certification, has standing. If

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[3]The court explicitly noted that *Rodriquez* was a Rule 23 case and not a standing case. *Id.* at 992.

that court, guided by the nature and purpose of the substantive law on which the plaintiffs base their claims, properly applies Rule 23, then the certified class must necessarily have standing as an entity. Because the trial court undoubtedly will have applied the rule in a manner that it thought proper, its answer to the question of whether the certified class has standing will almost invariably be in the affirmative.[4] Of course a court could apply Rule 23 so loosely as to result in the certification of a class that lacked standing. That such a situation could arise demonstrates the conceptual similarity and occasional overlap of Article III and Rule 23. It follows that a discrete and sequenced examination of the requirements of Article III and Rule 23 is needed to best highlight their differences. The degree of attenuation between the plaintiffs' claims and those of the class members ought not raise Article III questions. Instead the court must study those differences in light of Rule 23's requirements of class membership commonality, typicality, and adequacy, read in a manner congruent with the substantive policies of Title VII.

Both Vuyanich and Johnson assert concrete injury from the putatively illegal action of the defendant in violating 42 U.S.C. § 2000e-5. They each allege such a personal stake in the controversy's outcome as to give this court the power under Article III to hear both their complaint and those they raise on behalf of the putative class. What must be decided, then, is the scope of the class these plaintiffs may represent. That question, as discussed above, is not a question of standing under Article III, but rather a question of the relationship between the plaintiffs and the class they seek to represent. Its resolution turns on the application of the requirements of Rule 23 to the facts of this case.

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[4]Of course, if the individual plaintiff's claim becomes moot or absence of injury surfaces after the class has been certified, the trial court properly should determine whether the class has standing.

III. TITLE VII

That Rule 23 is procedural does not mean that it is to be read in a vacuum. The manner and scope of its application depend not on Article III or on the rule's inherent boundaries, but on the nature and purpose of the substantive law to be enforced. That is, Rule 23 must be read in the context of the substantive law of the asserted claims. Indeed, the body of Rule 23 law is virtually incomprehensible unless the cases are viewed as fashioning distinct approaches for distinct substantive areas. The plaintiffs in this case bring their claims and those of the class under Title VII, 42 U.S.C. § 2000e-5. Therefore, this court ought to apply the standards of Rule 23 to the purported class and its representatives with its gaze leveled at Congress' intent in enacting Title VII. That view is a by-product of the core principle that Article III is essentially a limitation upon the courts and not upon the Congress.

The Civil Rights Act of 1964, of which Title VII is a part, was the first comprehensive legislation ever to address the pervasive problem of discrimination against minorities — primarily blacks — in American society. Extensive hearings had focused Congress' attention on the adverse social and economic consequences of discrimination against minorities in employment and other fields. *See, e.g.*, Hearings on Civil Rights before Subcomm. No. 5 of the House Comm. on the Judiciary, 88th Cong. 1st Sess. 2300-03 (1963).

The Congress perceived that employment discrimination was having a destructive impact not only on those excluded who are "forced into a condition of marginal existence" but also on the nation as a whole which is deprived of "the full benefit of the skills, intelligence, cultural endeavor and general excellence" of the victims of discrimination. 2 U.S. Cong. & Adm. News 2515 (1964). The Congress further believed employment discrimination lay at the heart of all other forms of discrimination — that a promise of voting rights or equal access to public facilities would have slight value without the elimination of discrimination in employ-

ment. "The rights of citizenship mean little if an individual is unable to gain the exonomic (sic) wherewithal to enjoy or properly utilize them." *Id.* at 2516 (1964).

Congress recognized that "more positive and enduring steps must be taken, therefore, to cure this evil and before racial unrest eats irretrieviably (sic) into the body of the American industrial system." *Id.* at 2515. The House and Senate Reports reveal that the law the Congress enacted was intended to be a broad remedial measure, the purpose of which was to eliminate the widespread shameful conditions.

> In the last decade it has become increasingly clear that progress has been too slow and that national legislation is required to meet a national need which becomes ever more obvious. That need is evidenced, on the one hand, by a growing impatience by the victims of discrimination with its continuance and, on the other hand, by a growing recognition on the part of all of our people of the incompatibility of such discrimination with our ideals and the principles to which this country is dedicated. A number of provisions of the Constitution of the United States clearly supply the means "to secure these rights," and H.R. 7152, as amended, resting upon this authority, is designed as a step toward eradicating significant areas of discrimination on a nationwide basis. It is *general in application and national in scope.* (emphasis added). House Rep. 914, *id.* at 2393; *see* Sen. Rep. No. 872, *id.* at 2377.

This court must apply Rule 23 with a view toward fulfillment of Congress' purposes. It must read Rule 23's standards with sufficient breadth to carry out Congress' goal that employment discrimination be eliminated as expeditiously, thoroughly, and finally as possible. The court ought not to address the class question in the context of Article III "standing." That approach deemphasizes congressional purpose and freights analysis with an introspective concern of impact on the courts and the full range of forces articulated, and unspoken, that open and close judicial doors. It risks

substitution of judicial for legislative goal-setting through a by-passing of congressional concerns that underlie the substantive claims before the court — not wholly unlike the operation of substantive due process. Pointedly, the vitality of across-the-board suits ought not be decided in the milieu of prudential limitation. Instead it ought to be decided in the context of congressional objective; particularly so when those objectives are broadly stated and the means of achieving them are largely left to the courts. Guided by these principles, the court now turns to Rule 23 itself.

IV. RULE 23(a)

It is well established that in order for a suit to be maintained as a class action, each of the four requirements specified in Rule 23(a) must be satisfied. If any one of the four tests is not met, the court must refuse to certify the class. *See Huff* v. *N.D. Cass Co. of Alabama*, 485 F.2d 710, 712 (5th Cir. 1973); *Eisen* v. *Carlisle & Jacquelin*, 391 F.2d 555, 556 (2d Cir. 1968). There is no question that in this case subsection (a)(1), the requirement that the class be so numerous as to render joinder of all members impracticable, has been met. Defendant disputes plaintiffs' contention that the remaining three requirements are also satisfied — that there are questions of law or fact common to the class; that the claims of the representative parties are typical of the class claims; and that the representative parties will fairly and adequately protect the class interests. Each element of Rule 23(a) will be examined seriatim.

A. *Commonality.*

The existence of common questions under Rule 23(a)(2) is implicit in the finding under subsection (b)(2) that "the party opposing the class acted or refused to act on grounds generally applicable to the class." Many courts because of this apparent superfluity have either ignored or glossed over this requirement. *See* 3B J. MOORE, FEDERAL PRACTICE ¶ 23.06-1. Where courts have considered the issue,

they have found Rule 23(a)(2) does not require that all questions of law and fact be identical, but rather that a question of law or fact be presented that inheres in the complaints of all the class members. *See Escalera* v. *New York City Housing Authority*, 425 F.2d 853 (2d Cir.), *cert. denied*, 400 U.S. 853 (1970); *Norwalk CORE* v. *Norwalk Redevelopment Agency*, 395 F.2d 920, 937 (2d Cir. 1968).

Plaintiffs, to demonstrate the existence of a common question, introduced statistics which tended to support their claims that class questions exist with regard to whether through a number of different practices the defendant's discriminatory animus injured the members[5] of the class[6]. In

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[5]As discussed, *infra*, however, the court's division of the large class into a number of subclasses reveals that the statistics do not demonstrate the existence of common questions as to one of the subclasses.

[6]That evidence indicated that during the six-month period from October, 1970, through March, 1971, 100% of the persons hired into officer positions were white males, whereas only 23% of those hired into nonofficer positions were white males. Plaintiffs also introduced "Defendant's Review of Affirmative Action Goals — 1972" indicating that no females or minorities had been in the training programs for banking services, the trust department, or commercial banking.

Plaintiffs' statistics on job classification also indicate the existence of a common question — whether the bank discriminates against blacks and women. In April, 1975, white males held 87.1% of the officer positions, females held 11.1% and blacks held 0.2%. Of the exempt positions, white males occupied 77.2%, females 19.4%, and blacks 1.8%. As of December, 1977, in the top five executive positions there were 140 occupants; no females or blacks were in the top four positions while four females and no blacks were in the fifth category. Plaintiffs also introduced defendant's 1977 EEO-1 which set out the recent employment picture of the 2,297 bank employees. Although 36.31% of the employees were white males, they occupied 80.14% of the officer/manager jobs. White women, comprising 43.67% of the work force, held 15.89% of the officer/manager positions. Blacks comprised 13.93% of the total work force, but held ten of the 579 officer/manager positions, or 1.73%.

According to plaintiffs' statistics, females held only 7.4% of all exempt classifications by the end of 1971, and by the end of 1972,

this case, then, the common question of fact is whether the defendant bank engaged in discrimination against blacks and women. That the discrimination may have manifested itself in a variety of contexts including, but not limited to, hiring, promotions, job classifications, training, and pay, does not detract from the commonality of the class members' and representatives' claims.

It bears emphasis that at this stage of the proceeding the question is whether there are common questions and not whether the defendant is actually guilty of discrimination. Of course a plaintiff must do more to demonstrate the existence of the question than simply assert its existence. Bare bones conclusions are insufficient. At the same time, a plaintiff need not make out a prima facie case of liability. Where between these marks a plaintiff must place his proof has not yet been articulated. The Bank's evidence introduced to rebut plaintiffs' statistics[7] tends to show that its posi-

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held 11.9% of the exempt positions. Of the 43 exempt employees hired between June 1, 1971, and November 1, 1971, 81% were male and 19% were female. Although women comprised 59.8% of the Bank's work force as of May 15, 1974, they occupied 16.7% of the exempt classifications and 9.4% of the officer positions. Whereas 679 of the 918 males held jobs where the minimum salary exceeded $540 per month, 186 of the 1,367 females held such jobs.

As of December 8, 1971, although overall minority employment at the Bank was about 15%, no minorities were in Personnel, and none were in Paying and Receiving Tellers, Note Tellers, Customer Consultants, or New Accounts Clerks. The General Service Group of the Bank, however, was 20% minority. In December, 1972, four bank sections were over 30% minority and one was over 50% minority. In July, 1976, 82.7% of all blacks were employed in the Finance and Administration department. As of May 15, 1974, blacks comprised 14.6% of the Bank's work force, but they primarily occupied the nonexempt grades from one to six and held only 1.4% of the exempt classifications. Only 0.21% of the officers were blacks, and only eleven of the 334 blacks employed at the Bank earned between $10,000 and $18,000 per year.

[7]By the following figures, the Bank intended to prove that the applicant flow determined the sex breakdown of the hires, and that women applied for exempt positions much less frequently than men.

tion of denial may not be insubstantial. But the sum of plaintiffs' and defendant's statistics points to the conclusion that in the liability phase of this proceeding, the court will have the duty of resolving certain contested issues of fact and law; that is, common questions do exist.

The Bank also sought to demonstrate that proportionately more women exempt applicants were hired than male applicants.

	Male	Female
% hires 1971 exempt	85.9	14.1
% applicants 1971 exempt	87.3	12.7
% hires 1972 exempt	84.3	15.7
% applicants 1972 exempt	87.0	13.0
% hires 1973 exempt	82.9	17.1
% applicants 1973 exempt	86.2	13.8
% hires 1974 exempt	83.4	16.6
% applicants 1974 exempt	86.0	14.0
% hires 1976 exempt	74.7	25.3
% applicants 1976 exempt	80.9	19.1
% hires 1977 exempt	88.3	31.7
% applicants 1977 exempt	78.0	22.0
% hires 1978 exempt	65.6	34.4
% applicants 1978 exempt	74.4	25.6

Defendant's exhibits also demonstrated that for management training positions and all exempt positions in 1971, the rate of female-hires exceeded the rate of female applications.

Defendant introduced the following evidence to demonstrate that women and black exempt employees received promotions in equal or greater proportions than white male exempt employees:

Date		Black	White Male	White Female
1973	% Promotions	1.2	77.8	18.1
1973	% Work Force	.5	83.6	14.9
1974	% Promotions	1.9	80.9	15.1
1974	% Work Force	1.0	81.9	15.4
1975	% Promotions	2.3	78.3	16.1
1975	% Work Force	1.6	78.8	17.0
1976	% Promotions	1.1	68.9	25.7
1976	% Work Force	2.2	75.8	19.1
1977	% Promotions	0.7	75.4	19.9
1977	% Work Force	1.9	73.5	21.8
1978	% Promotions	3.2	70.2	25.8
1978	% Work Force	2.7	70.3	23.9

B. *Typicality.*

Rule 23(a) (3) focuses the court's attention on the nature of the representative's claims. It requires a determination of whether, given the fact that the representative raises some question of law or fact that is common to the class, the remaining issues and possible defenses are also typical.

Defendant attacks the typicality of plaintiffs' claims on numerous grounds. First, the Bank argues that if true, the facts that Vuyanich alleges are unique. It contends that Vuyanich, who complains of discriminatory treatment because of her interracial marriage, only raises claims typical of those who also allege discriminatory treatment as a result of an interracial marriage. Vuyanich's claim, like that of all class members, is of discrimination. The fact that the discrimination may have manifested itself in disapproval of her mixed marriage does not render her complaint any less typical. Defendant also contends that Vuyanich's termination was simply a personnel decision that resulted from a personality conflict with other employees. The fact that at trial defendant may raise this matter as a defense does not render Vuyanich an improper class representative. It is only logical that any employer would assert that the treatment of a particular employee was a justifiable personnel decision and not an instance of discrimination. Such a defense is thus typical. Furthermore, in *Rodriquez*, the Supreme Court made clear that even if a class representative of a certified class ultimately loses her individual claim on the merits, the class claim can still stand. *East Texas Motor Freight System, Inc.* v. *Rodriquez, supra,* 431 U.S. at 406, n.12; *Satterwhite* v. *City of Greenville, supra,* 578 F.2d at 994 (1978).

Second, the Bank claims that because its structure is so massive and decentralized and the positions its employees hold are so varied, the claims of Vuyanich and Johnson cannot be typical. It argues that the typicality requirement allows a plaintiff in this case to represent only those employees who held the same position in the Bank as she

did and complain of the precise employment practice that she does.

The law does not mandate a holding that a plaintiff complaining of one employment practice cannot represent an employee complaining of a different employment practice. Indeed, the purposes of Title VII counsel in favor of across-the-board representation. Recent Fifth Circuit cases have endorsed such suits. *See Satterwhite* v. *City of Greenville, supra*, 578 F.2d 987; *Payne* v. *Travenol Laboratories, Inc., supra*, 565 F.2d 895. The court in *Payne* permitted the named plaintiffs to represent the class of persons injured by the employer's college degree requirement even though the plaintiffs, because they lacked other qualifications necessary to obtain the position for which a college degree was but one prerequisite, were not harmed by the requirement. The court stated:

> Plaintiffs' action is an "across-the-board" attack on unequal employment practices alleged to have been committed by Travenol pursuant to a policy of racial discrimination. As parties who have allegedly been aggrieved by some of those discriminatory practices, plaintiffs have demonstrated a sufficient nexus to enable them to represent other class members suffering from different practices motivated by the same policies. 565 F.2d at 900.

The more recent en banc decision in *Satterwhite* v. *City of Greenville, supra*, 578 F.2d 987, contains language explicitly approving across-the-board suits in which the class representative asserts a discriminatory animus which manifests in a variety of discriminatory practices, some of which may not have caused the representative's injury but which nonetheless injured certain members of the class. The court stated, "It is not necessary that the representative suffer discrimination in the same way as other class members, but it is necessary that she suffer from discrimination in some respect." *Id.* at 994, n.8.

East Texas Motor Freight Systems, Inc. v. *Rodriquez*, *supra*, 431 U.S. at 403, which held a class representative must "possess the same interest and suffer the same injury" as the members of the class, does not preclude such representation. The class representative in *Rodriquez*, unlike the plaintiffs and intervenors in this case, had suffered no injury. The "same interest/same injury" test must be read and understood in that context. It does not require an identical harm resulting from the same type of practice.[8]

While the typicality requirement does not prohibit across-the-board representation, in certain cases subclassing under Rule 23(c)(4) according to the practice of which the members complain serves to facilitate the proceedings. The evidence thus far before the court indicates that the creation of a subclass of applicants is appropriate. The responsibility for hiring new employees rests heavily on the Personnel Department. Personnel determines whether an applicant

[8]The Fourth Circuit has interpreted *Rodriquez* in a contrary manner. In *Hill* v. *Western Electric Co.*, No. 76-2439 (4th Cir. April 6, 1979), six black male and female plaintiffs alleged Western Electric had engaged in a pattern of discrimination against blacks and females in hiring, job assignments, and promotions in its facilities in Arlington, Virginia. The trial court certified the broad class but the circuit, relying on *Rodriquez*, reversed in part. The court held *Rodriquez* "is not broad enough to permit a named representative to represent a class of people who suffered different injury or those having similar claims but who are employed in other facilities." *Id.* at p.7. Judge Haynsworth added that "a named plaintiff may represent a class of persons whose injuries and interests are of a kind with the representative's. A person who has been injured by unlawful, discriminatory promotion practices in one department of a single facility may represent others who have been injured by the same discriminatory promotion practices in other departments of the same facility." *Id.*

The Fifth Circuit, in *Satterwhite* and *Payne*, clearly rejected the Fourth Circuit's view of *Rodriquez*. Even if *Western Electric* were the law in this circuit, however, this court's decision today would not be in conflict with it. As discussed, *infra*, each representative of the various subclasses created by this opinion complains of the same practices that allegedly injured the members of her subclass.

is seeking an exempt or nonexempt position. The department hires nonexempt employees and steers exempt applicants to particular openings. It does not appear at this time, however, that further subclassing according to the different practices alleged would expedite the trial. The remaining challenged practices including promotion, pay, training, testing, transfer, job assignment and classification, job content, and constructive discharge are intertwined. A denial of training, for example, will affect promotion; testing may affect transfer; a variety of discriminatory practices may drive a person to resign. Unlike Personnel's role in hiring, a separate department is not primarily responsible for each of these practices. It is then not surprising that Vuyanich and each intervenor contends in her complaint, affidavit, or testimony that she personally was injured by all or most of the practices. The fact that different practices are challenged therefore only warrants a class division into applicant and employee subclasses.

The existence of different job classifications also merits subclassing. The Bank's work force is divided into exempt and nonexempt employees. Exempt employees have managerial responsibilities whereas nonexempt employees perform largely clerical duties. Exempt employees are the decision- and policy-makers. Their skills are specialized. The skills of nonexempt clerical employees, however, are transferable not only to different banks, but also to a variety of institutions and businesses. Because of these differences, separate groups of employees in Personnel screen and interview applicants for exempt and nonexempt positions. The method of compensating employees in the two classifications is also different. Unlike exempt employees, nonexempt employees are within the protection of the Fair Labor Standards Act and thus receive (or at least are entitled to receive) overtime pay. Exempt, unlike nonexempt, are ranked and compensated according to the so-called "Hay System." These and other differences will undoubtedly prompt plaintiffs at trial to introduce different sets of statistics in an effort to demonstrate discrimination among exempt

employees and applicants and nonexempt employees and applicants. Statistics on the promotions of all female employees, for example, may not accurately reflect the rate of female promotions into exempt positions. Data on the total number of women hired may not parallel figures on the number of females hired into exempt positions. Because of the differences between exempt and nonexempt classifications and the effect these differences will have on the presentation of evidence, it now appears appropriate to further divide the class into subclasses of exempt employees, nonexempt employees, exempt applicants, and nonexempt applicants.

C. *Adequacy.*

1. *Conflicts of Interest.*

Adequacy of class representation is crucial to assure that the absent class members are not deprived of due process and that the final judgment is binding. A court, in assessing a representative's adequacy, must focus initially on the interrelated questions of attorney competence and any conflicts with the interests of the class members. Competency of counsel means more than mere technical competence. Although the class is not the client, the class attorney owes a duty to each member of the class. *See Mandujano* v. *Basic Vegetable Products, Inc.*, 541 F.2d 832 (9th Cir. 1976). Thus lack of congruence among the interests of the class representatives and the class members may render the attorney, despite his diligence, unable to counsel the class members and the plaintiffs fully and fairly. *Harriss* v. *Pan American World Airways, Inc.*, 74 F.R.D. 24, 43 (N.D. Cal. 1977).

A class representative who, as a result of interests at variance with those of other class members, cripples his attorney's ability to counsel the class is not an adequate representative within the meaning of Rule 23(a)(4). If a representative's interests are antagonistic to those of other class members, the claims of absent class members may be lost. Those same claims might have been successfully

asserted had the class been properly framed. A class member whose claims are not protected due to inadequate representation thus may collaterally attack the judgment. *Gonzales v. Cassidy*, 474 F.2d 67 (5th Cir. 1973). To protect a defendant against inconsistent adjudications and the expense of defending several suits, a court must carefully scrutinize for conflicts a class and its representatives.

Defendant contends that a named plaintiff's attempted representation of both blacks and females inevitably produces antagonistic interests. The Bank argues that the representative must assert as a woman that the employer favors all men, including black men, and as a black that the employer favors all whites, including white women. It submits that the conflicts that emerge between the representative and black male class members and between the representative and white female class members make the attorney unable to counsel the class properly and the named plaintiff an inadequate representative.

This court is unwilling to hold as a matter of law that no black female could represent without conflict the interests of both blacks and females. Such representative could legitimately assert that the employer discriminates against all blacks and women and favors white males. *See, e.g., Donaldson* v. *Pillsbury Co.*, 554 F.2d 825 (8th Cir. 1977).

The proper inquiry must be whether the facts of a particular case indicate that such fundamental antagonism actually exists or is likely to result from dual representation. In this case, an examination of the testimony at the class certification hearing and in depositions reveals that a conflict between the claims of black nonexempt employees and female nonexempt employees may render representation of both groups by a black female inadequate within the meaning of Rule 23(a)(4). Vuyanich, a black female, asserts that her termination resulted in part from conflicts with racist white female co-workers. A witness at the certification hearing testified that black females once planned a walkout to protest the promotion to a secretarial position

of a white female instead of a black female. Proposed intervenor Dorothy Hooks testified that while females had better pay and promotional opportunities than black females. Several deponents described racist attitudes of their white female supervisors.

The solution to this problem of potentially inadequate representation is to establish subclasses. Rule 23(c)(4), which enables courts to restructure complex cases so as to satisfy Rule 23(a)'s requirements, empowers the court to "treat common things in common and distinguish the distinguishable." *Jenkins* v. *United Gas Corp.*, 400 F.2d 28, 35 (5th Cir. 1968). The use of subclassing to separate adverse class members is not uncommon. *See Cass* v. *Conoco Plastics, Inc.*, 423 F.2d 57, 58 (5th Cir.), *cert. denied*, 400 U.S. 951 (1970). The facts of this case warrant the further division of the nonexempt employee subclass into two units, one of blacks of both sexes, and one of females of both races.

At this time, there is no evidence indicating an actual or potential conflict also exists between black exempt employees and female exempt employees. No testimony pointed to the existence of such a conflict. Furthermore, the number of black and female exempt employees is sufficiently small to support the view that a conflict between them is unlikely. Thus, there is no need at this stage in the proceeding to create separate subclasses of black and female exempt employees. The potential conflict of interest among applicants mirrors that among employees. Because a large number of nonexempt employees have been white females, a black applicant for a nonexempt position might easily contend that a white female was hired in his or her place. Thus there should be a subclass of black applicants for nonexempt positions and one of female applicants for nonexempt positions. At this time the evidence does not reveal, however, a similar potential conflict between black and female applicants for exempt positions. Because the number of females and blacks hired into the exempt ranks has been relatively small, it does not appear likely that a white female applicant will argue a black was hired in her stead or that a black male will contend a female took his or her place. Furthermore,

there has been no testimony indicating such a conflict exists. Subclasses of black and female exempt applicants are thus unnecessary.

Because of potential conflicts of interest among certain of the various subclasses, present counsel cannot represent the members of all subclasses. From the beginning, Linda Coffee has represented Ellen Johnson. Ms. Johnson, as discussed below, is the class representative for the subclasses of black nonexempt applicants, black and female exempt applicants, and black and female exempt employees. Because the court does not now perceive a potential conflict arising out of Ms. Coffee's representation of those subclasses, she may continue as their counsel. Joanne Peters represents Joan Vuyanich who is a class representative of nonexempt black employees. Ms. Peters may continue as counsel for that subclass. Ms. Peters may also represent, with Ms. Coffee, the subclasses of black nonexempt applicants, black and female exempt applicants, and black and female exempt employees. Ms. Coffee likewise may join with Ms. Peters in representing black nonexempt employees.

The court has found a potential conflict between black nonexempt employees and female nonexempt employees. Therefore, Ms. Peters cannot continue as counsel for the female nonexempt employee subclass. That same potential conflict exists between black nonexempt applicants and female nonexempt employees. Ms. Coffee thus is precluded from representing the female nonexempt employee subclass.

2. *Incentive and Ability to Represent.*

The Bank disputes the plaintiffs' incentive to prosecute the suit due to their "equivocal" interest in being rehired. First, a requirement that a former employee class representative seek reemployment is inconsistent with "across-the-board" suits. *See Johnson* v. *Georgia Highway Express, Inc.*, 417 F.2d 1122 (5th Cir. 1969). Furthermore, it should be noted that both Vuyanich and Johnson do seek reemployment at the Bank. The fact that each has testified that she

would insist on being restored to her rightful position does not render her interest equivocal[9].

Defendant also contends that because of the plaintiffs' lack of recent contact with the Bank, they are inadequate representatives of recent or present employees and their claims are atypical of that group. Vuyanich was last employed almost ten years ago and eight years have passed since Johnson applied for a job. The Bank argues that in the interim, many changes in employment practices and conditions have occurred. The job grade system has been restructured; a procedure was adopted whereby all new positions and vacancies were to be posted; modifications in maternity leave policies and uniform requirements have taken place. Defendant claims that the matters to which the plaintiffs will testify simply do not pertain to the circumstances confronting present employees.

The Fifth Circuit, in allowing former employees to represent present employees, has implicitly found that a certain lapse of time does not in itself render representation inadequate. In this case, much of the time that has passed since plaintiffs departed the Bank is not chargeable to them or their counsel. Both plaintiffs filed their EEOC charges within 180 days after the alleged discrimination occurred, as the Act requires. 42 U.S.C. § 2000e-5(d). When they received their right to sue letters, they again followed the Act's timetable and promptly filed suit in federal court within 90 days. 42 U.S.C. § 2000e-5(f)(1). The lapse of time between their departure from the Bank and the trial of this suit is a function of the judicial process and is beyond their control. After this case was filed, it was transferred to four different courts before reaching this one. Furthermore, a not inconsiderable amount of time was spent in discovery squabbles. Despite these setbacks, plaintiffs persisted in their claims. This court is unwilling to penalize the class or the plaintiffs for this

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[9]Their interest in being rehired demonstrates that even if they were not representing a class, they would be able individually to seek injunctive relief.

lengthy procedure and does not find the plaintiffs inadequate on the ground that time has passed since they left the Bank. Rather, it will allow intervenors who were more recently employed at the Bank to bolster the class representation. This approach should encourage more prompt disposition of claims such as this one. A defendant who prolongs a proceeding may be simply increasing his liability. A contrary holding would provide incentive for defendants to drag their feet, for the sheer lapse of time would render representation inadequate.

V. INTERVENTION

Rule 23(d) makes specific provision for the intervention of class members into class actions. Subdivision (d)(2) empowers the court in any type of class action to encourage members of the class "to intervene and present claims or defenses, or otherwise come into the action."

The rule, giving the courts broad discretion, permits intervention for two general purposes — "for the protection of the members of the class or otherwise for the fair conduct of the action." These two purposes mirror the two types of intervention which Rule 24 allows — intervention as of right and permissive intervention. Rule 24 thus governs class action intervention. Advisory Committee Note, Fed.R.Civ.P. 24(a), 39 F.R.D. 109. Because class members will be bound by the court's judgment, intervention should be allowed under Rule 24(a) as of right whenever it appears that the named representative cannot adequately represent the interests of the class. *See* 7A C. Wright & A. Miller § 1799. A class member "should not be put to the risk of having a judgment entered in the action which by its terms extends to him, and be obliged to test the validity of the judgment as applied to his interest by a later collateral attack. Rather he should as a general rule, be entitled to intervene in the action." Advisory Committee Note, Fed.R.Civ.P. 24(a), 39 F.R.D. 109, 110. If the court determines that the interests of the class are fully protected, however, the court should

have discretion either to deny the intervention or to permit it "for the fair conduct of the action." Fed.R.Civ.P. 23(d)(2).

Following these general principles, the Supreme Court and Fifth Circuit have allowed additional plaintiffs to represent a class when it appears that the named plaintiff either does not satisfy one of the criteria of Rule 23(a) or is not as strong a representative as he or she might be. In *United Airlines, Inc.* v. *McDonald*, 432 U.S. 385, 394 (1977), the court upheld the right of a member of a putative class to intervene for purposes of appealing the trial court's denial of class certification even after a judgment had been entered. The court, in allowing the intervention, observed that the denial of certification proved that "the unnamed class members would no longer be protected by the named class representatives." In *Oatis* v. *Crown Zellerbach*, 398 F.2d 496 (5th Cir. 1968), the court encouraged the participation of additional plaintiffs who could better represent possible subclasses even though it did not find that the named plaintiff was an inadequate representative. The class members were black employees who worked in a number of different departments of the defendant. The court observed that, "due to the inapplicability of some of the issues to all members of the class, the proceeding might be facilitated by the use of subclasses." *Id.* at 499. It stated that co-plaintiffs from other departments could represent subclasses composed of members of those departments "so as to fairly and adequately protect their interests." *Id.* While it is true that *Oatis* did not involve proposed intervenors, its principle is nonetheless applicable to this case: even if the court does not find the named plaintiff inadequate, it should allow such intervention as will make the representation even stronger and protect the class members most completely.

The question of whether the proposed intervenors will strengthen the representation in this case is complicated by the fact that none of the proposed intervenors except Elizabeth King have exhausted their administrative remedies. If that nonexhaustion either bars their claims or so limits

them as to destroy the benefits of intervention, the court will deny the intervenors' motions.

Intervenors in Title VII class actions are not required to have exhausted their administrative remedies. In *Oatis* v. *Crown Zellerbach, supra*, 398 F.2d at 499, the court held that as long as one plaintiff in a litigation had filed a charge with the EEOC, the co-plaintiffs were not also required to exhaust administrative remedies. It was found sufficient that the co-plaintiffs were members of the class. The Fifth Circuit has extended the *Oatis* rule, which technically applied only to co-plaintiffs, to intervenors in Title VII cases. *Wheeler* v. *American Home Products Corp.*, 563 F.2d 1233 (5th Cir. 1977); *Olivares* v. *Martin*, 555 F.2d 1192 (5th Cir. 1977).

An intervenor who has not exhausted his administrative remedies is limited in his claims, however, *Oatis* permitted nonexhausting co-plaintiffs to represent the class because they raised "the same or some of the issues" raised by the exhausting plaintiff. Explaining further, the court held: "They as co-plaintiffs must proceed . . . within the periphery of the issues which [the exhausting plaintiff] could assert." 398 F.2d at 499. An exhausting plaintiff may only assert those issues which he raised in his administrative complaint, together with any matters that may reasonably be expected to grow out of that complaint. *Sanchez* v. *Standard Brands, Inc.*, 431 F.2d 455 (5th Cir. 1970). This limitation, however, does not prohibit across-the-board suits. A plaintiff whose EEOC charge only alleged a single discriminatory practice may complain on behalf of the class of other discriminatory employment practices committed by the same employer. *See, e.g., Carr* v. *Conoco Plastics, Inc., supra*, 423 F.2d at 65. Thus a nonexhausting intervenor may raise those issues that the exhausting plaintiff could assert in an across-the-board suit.

The intervenors in this suit do not raise any issues that differ from those raised by Johnson and Vuyanich. On her own behalf and on behalf of the class, Johnson asserts sex

and race discrimination in hiring, job classifications and qualifications, promotions, training, rules and regulations, and practices that otherwise deprived the class members of equal employment opportunities. Vuyanich claims on behalf of herself and the class sex and race discrimination in compensation, classification, hiring, training, promotion, transfer, work conditions, and termination.[10] The intervenors collectively assert discrimination on the basis of race and sex in compensation, training, promotion, transfer, job classification, job assignment, work conditions, and termination. Thus these claims all fall within the confines of *Oatis* and *Standard Brands* and may all be raised by any intervenors whose motions the court grants.

This opinion has created six potential subclasses: blacks and females who applied unsuccessfully for exempt positions; blacks who applied unsuccessfully for nonexempt positions; (unsuccessful female applicants for nonexempt positions); black and female exempt employees; black nonexempt employees; and female nonexempt employees. Each subclass and its representative(s) must meet the requirements of Rule 23(a).

The possible subclass of female nonexempt applicants does not satisfy the commonality requirement. A large proportion of the applicants hired to fill nonexempt positions were female. There is insufficient evidence to raise a class question of whether female nonexempt applicants were victims of discrimination. Unsuccssful female applicants for nonexempt positions thus should not be part of the larger class. To that limited extent, the class is decertified.

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[10]Defendant contends that Vuyanich's EEOC complaint was only sufficient to support claims of race discrimination under *Sanchez* v. *Standard Brands, Inc.*, 431 F.2d 455 (5th Cir. 1970). When this case was before Judge Mahon, he addressed this issue, and, in a well-reasoned opinion, found that Vuyanich's EEOC complaint supported claims of both race and sex discrimination. 409 F.Supp. 1083 (N.D. Tex. 1976). This court sees no reason to disturb that ruling.

The remaining two applicant subclasses and their representative, Johnson, satisfy Rule 23(a). The members of each subclass raise the common question of whether the Bank's refusal to hire was discriminatory. The typicality requirement is likewise satisfied. Although plaintiff Johnson applied for an exempt position, she has testified that she would have accepted an offer for a nonexempt job. Finally, she is an adequate representative of the two subclasses. She alleges that the Bank's discriminatory refusal to hire her was on the basis of both race and sex. As discussed above, the court at this time perceives no conflict between black applicants and female applicants for exempt positions. Johnson thus may represent the subclass of both black and female exempt applicants. There likewise is no conflict between Johnson, a black, and the class of black nonexempt applicants. These two subclasses will cover the period from April 16, 1971 — 180 days before Johnson filed her charge with the EEOC — until the present.

Defendant contends that because in her complaint she only sought to represent a class of women, Johnson may represent females but not blacks. Johnson's complaint and EEOC charge both allege race and sex discrimination. The complaint and charge gave the defendant adequate notice that it faced a class action in which the members asserted race discrimination. Thus, her complaint does not preclude her from representing black as well as female applicants.

Plaintiff Johnson, although an unsuccessful applicant for an exempt position, will also represent black and female exempt employees. Because the Fifth Circuit has determined that across-the-board suits do not offend Rule 23, she may represent employees complaining of such practices as promotion, pay, and transfer. *See Satterwhite* v. *City of Greenville, supra.*

Marjorie Lee Jackson was employed by the Bank as an exempt employee from September 13, 1971 until October 9, 1973. She worked in Estate Administration as an administrative assistant. She testified that she was the only female

holding such a position at the Bank. She further testified that although she had greater responsibility than the men holding the same position, she believes that she was paid less. She stated that although officers came from the ranks of administrative assistants in her department, she was not promoted. Jackson further testified that she requested transfer into a trust new business position but was informed by a male bank officer that he did not expect to have to hire women into such positions for at least five years. Jackson, with Johnson, will represent exempt employees. There is no conflict of interest between Jackson and the subclass; her claims are typical and she is an adequate representative.

Marisu Fenton will represent nonexempt female employees. She worked for the Bank from May 22, 1972 until August 3, 1973. She complains of discrimination in job classification, training, promotion, transfer, compensation, working conditions, and job content. Although she had a degree in business administration and graduated in the top 10% of her class, she was hired as a nonexempt employee. She testified that many other educated and qualified women were in comparable positions. She further testified that even though the evaluations she received from her superiors were consistently favorable, she never received any training which would have enabled her to move into management. Nor did she receive a promotion that resulted in an increase in salary. Although Fenton was a nonexempt employee, she testified that the Bank kept no records of the hours she worked and did not pay her overtime when she worked more than 40 hours a week. She is an adequate representative of the subclass and her claims are typical[11] Rule 23 thus is satisfied.

Vuyanich and Dorothy Hooks will represent the subclass of black nonexempt employees. As already discussed, Vuyanich raises claims that are typical of this subclass and is an adequate representative. In addition to asserting that

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[11]The statistics discussed in n.4, *supra*, demonstrate that Fenton's complaints concerning job classification, training, promotion, and compensation are typical of the subclass of nonexempt females.

she was terminated because of her interracial marriage, Vuyanich claims that the Bank segregated her and other blacks into departments such as Money Orders which were out of public view. She further asserts that she was paid less than her white co-workers and that despite the racial conflict between the plaintiff and her white associates, the Bank failed to transfer her to another department. Dorothy Hooks was employed by the Bank from 1963 until 1970. She complains of race discrimination in pay, promotion, training, transfer, job assignment and classification and job content. Specifically, she alleges that she, like Vuyanich, was confined to Money Orders away from the public. During the seven years that she was at the Bank, she worked her way up through various positions in Money Orders, but observed many white employees move at a more rapid pace. Before she became a supervisor, she was required to train several white males for supervisory positions. After Hooks complained, she was promoted to supervisor. She testified that white males holding comparable positions were paid more than she was. When a different white male became the head of Money Orders, Hooks testified that he took away her supervisory authority, and then would not allow her to transfer. She asserts that as a result of these racist practices, she was constructively discharged. She satisfies Rule 23's requirements. Because she was at the Bank for a longer period of time than Vuyanich, her testimony will bolster the class representation.

In the above three employee subclasses, the class period will extend from February 16, 1969 to the date of the trial.

The motions to intervene of Dorothy Hooks, Marjorie Jackson, and Marisu Fenton are GRANTED. The motions to intervene of Portia Williams, Elizabeth King, and Martha Davis are DENIED.

The subclass of female nonexempt employees is presently without counsel. The class representative should retain new counsel for that subclass within fifteen (15) days.

/s/ PATRICK E. HIGGINBOTHAM
PATRICK E. HIGGINBOTHAM
UNITED STATES DISTRICT JUDGE

APPENDIX G

UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF TEXAS
DALLAS DIVISION

JOAN RANCE VUYANICH

v.

REPUBLIC NATIONAL BANK
OF DALLAS

ELLEN JOHNSON

v.

REPUBLIC NATIONAL BANK
OF DALLAS

CA-3-6982-G and CA-3-7949-G

March 15, 1978

CLASS CERTIFICATION ORDER

PATRICK E. HIGGINBOTHAM, District Judge.

Joan Vuyanich filed the first of these two Title VII actions on March 22, 1973, five years ago and almost four years after she filed her EEOC charge on August 15, 1969. Ellen Johnson filed her EEOC charge on October 15, 1971, and filed her suit on December 3, 1973. Both are black women and both allege that they are victims of the defendant's discriminatory employment practices. On November 7, 1974, another court conditionally certified the Vuyanich case as a class action on behalf of a broad class of women and blacks and on March 12, 1976, refused to strike the sex allegations from that class. *See,Vuyanich* v. *Republic National Bank of Dallas*, 409 F.Supp. 1083 (N.D. Tex.1976). After two more years of discovery squabbles and arguments concerning the scope of the class, the court held

an evidentiary hearing on February 3 and 4, 1978, to update and redefine the class. And after reflection, it is the court's order that these cases are consolidated and certified to proceed as a class consisting of:

> All females of all races and all blacks of either sex; 1) who are or have been employed by the Republic National Bank on or after February 16, 1969, and 2) who applied for employment but were not hired at the Republic National Bank on or after February 16, 1969 to date.

Joan Rance Vuyanich and Ellen Johnson are the designated class representatives, and Linda N. Coffee and Joann Peters are named attorneys for the class.

The Defendant and its Personnel Practices

The defendant is the largest bank in the South with total assets exceeding five billion dollars (1976 Annual Report) employing between 1,500 to 2,300 employees, most at a single location in Dallas, Texas. The 1976 EEO-1 Report classified the work force as 58% "Office-Clerical", 25% "Officials-Managers", 9% "Professionals", and the remainder "Sales, Technical, and Blue Collar Workers." All employees except officers, managers, and a few first-line supervisors are subject to the Fair Labor Standards Act.

There are 514 officers divided into five levels. Level One consists of banking and trust officers. This is the lowest or entry level. Assistant vice-presidents form the second level, vice-presidents the third, and senior vice-presidents the fourth, leaving executive vice-presidents as the top level. Each vice-president also has a title descriptive of his function such as manager or trust officer. The bank's practice is to promote employees to officer, not hire directly into that level. Entry into Level One requires recommendation by department and division managers, and all officers are elected by the Board of Directors. The president usually nominates the senior officers.

The Executive Committee, composed of the chairman of the board-chief executive officer, the president, nine execu-

tive vice-presidents, and at least 25 senior vice-presidents, makes the hiring, promotion, and compensation decisions. All members are white males.[1] The executive vice-presidents also head the bank's various departments and the senior vice-presidents head the divisions within each department.

In 1973 the number of pay grades for nonexempt workers was reduced from 17 to 10, with grade 10 the highest pay level.

Plaintiffs' Evidence

A history of discrimination was shown. For example, in December 1969, shortly after Vuyanich filed her EEOC charge, blacks constituted 7.56% of defendant's work force but only .34% of its managers. None were officers. Nor were there any female officers then, although women represented 58% of the defendant's total work force. By the time of the Johnson charge (October 15, 1971), only two female officers had been appointed. By 1976 females made up 60% of defendant's work force, but only 12.9% of its officers. But virtually all the females were in the lower two of five levels of officers. The improvement from 1970 was also shown by the statistics. Approximately 85% of its female employees held clerical positions. While constituting over half of the bank's work force in 1975, females held only 9.2% of its officer jobs.

By 1977 the number of black employees hired increased to approximately 14% of defandant's work force. But less than 2% of them were categorized as EEO officers or managers. The defendant in 1977 had 514 officers — three were black. Defendant has approximately 150 vice-presidents. By

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[1] ". . . promotion/transfer procedures which depend almost entirely upon the subjective evaluation and favorable recommendations of the immediate foreman are a ready mechanism for discrimination . . . We and others have expressed a skepticism that black persons dependent directly on decisive recommendations from Whites can expect nondiscriminatory action." *Rowe* v. *General Motors Corp.*, 457 F.2d 348, 359 (5th Cir. 1972).

1976, four were female. By 1976, although women represented almost 60% of the bank's total work force, only 12.9% were officers and over 75% held nonexempt positions.

This data, only sketchily summarized here, suggests strongly that plaintiffs have demonstrated at least prima facie that defendant's personnel practices have been infested to the core by racial and sex discrimination.[2]

The Specific Requirements of Rule 23

That sex or race claims often present issues of inherently class-wide impact does not mean that Title VII cases are exempt from or automatically meet the requirements of Rule 23. Otherwise stated, all proffered class actions must be subjected to the discipline of Rule 23 analysis.

The 23(a) Quartet

1. *The Class is so Numerous that Joinder of all Members is Impracticable.* The bank urges that the "numerosity" requirement is not met if the court accepts its proposed class definitions. The bank's suggestions are not acceptable. It is not helpful to suggest "classes" composed of ". . . all blacks discharged on the grounds they were married to a person of another race . . ." or "females with liberal arts bachelor's degrees who were denied employment with defendant in its management training programs on the basis of sex . . . ." These are gerrymandered strawmen. A class representative and a class member must be similarly, not identically, situated. It is only common sense that an effort to group into a class persons with interests common to the claimed illicit conduct is not aided by extraneous requirements for class membership. The rejection of defendant's proposed "classes" leads inevitably to the conclusion that "numerosity" is present.

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[2] ". . . statistical evidence in Title VII cases has often been given critical weight in this circuit . . .". *See, Pettway* v. *American Cast Iron Pipe Co.*, 494 F.2d 211, n. 34 at 225 (5th Cir. 1974).

2. *There are Questions of Law or Fact Common to the Class.* The bank argues that plaintiffs fail to meet this requirement because they have not proved specific employment practices claimed to birth discrimination. Herein may lie the basic disagreement between the two sides. The bank's argument that plaintiffs have only shown several different claims has surface plausibility. But closer examination reveals the contention is fundamentally flawed by an erroneous legal premise. The issue is whether the proposed class actually presents distinctly discrete claims or whether the claims, though possessing different factual characteristics, are but different manifestations of a central core violation. Plaintiffs charge, and have virtually made out a phase I prima facie case that all complaints flowed from a central policy to hire blacks and females only into lesser paying jobs and thereafter deny them equal promotion opportunity. In doing so, they have exceeded the requirements for demonstrating the existence of a class. Indeed plaintiffs' proof is more the evidence expected in a phase I hearing than in hearing a class certification. See *Baxter* v. *Savannah Sugar Refining Corp.*, 495 F.2d 437 (5th Cir. 1974), *cert. denied*, 419 U.S. 1033, 95 S.Ct. 515, 42 L.Ed.2d 308 (1975); *Swint* v. *Pullman-Standard*, 539 F.2d 77 (5th Cir. 1976). In Title VII terms, it is plant-wide and across the board discrimination.

The attack of plaintiffs may with further discovery become more focused. It may be, however, that this crisper focus (and precisely put class questions) will emerge only from the defense of a prima facie case made out by a statistical analysis of the bank's personnel policy. For example, the data does not suggest sex discrimination manifested by general resistance to the hiring of females; it does suggest that sex was a factor in hiring for managerial and officer trainee positions. The focus of sex discrimination may be promotion opportunity of females and claimed lock-in to clerical positions. At the same time the data suggests racial discrimination both in resistance to hiring and promotion. A number of the bank's personnel practices may be put in issue such as testing of officer potential by Sadler & Associates, the subjectivity of promotion decisions viewed

against a history of sex and racial discrimination, the requirement of a college degree for officer status, the effect of the Hay system of compensation in an employment environment still evidencing results of historical segregationist and sexist patterns.

3. *The Claims or Defenses of the Representative Parties are Typical of the Claims or Defenses of the Class.* Defendant asserts that "each claim involved a separate fact situation, and unless it can be shown that defendant's action in each of such cases was a part of, or resulted from, a unifying practice in policy, the claims simply cannot be said to be 'typical'." Without accepting the full sweep of this broad assertion the quick answer of plaintiffs prevails. Plaintiff's data does reveal a central policy. It is not now necessary and probably not at a phase I hearing to identify specific employment practices. The device of subclassing and class redefinition is an available tool to deal with problems of dissimilarity. *See, United States* v. *United States Steel Corp.*, 520 F.2d 1043, 1051 (1975), where the court urged the use of this device where there was ". . . A large variety of employment practices coalesced to greater and lesser degrees to affect groups of black employees across different plants, departments, job classifications, and earned seniority levels throughout . . .", 520 F.2d 1051.

4. *The Representative Parties Will Fairly and Adequately Represent the Interest of the Class.* The defendant has challenged the adequacy of representation of Vuyanich and Johnson. The court finds both to be interested and active class representatives. The fact that Johnson has filed many discrimination suits underscores her interest in asserting the rights of the class in this action. The bank faults Ms. Johnson for a ". . . proclivity for shouting 'discrimination' each time that she feels slighted by an employer or a prospective employer . . .", Supp. Brief of Defendant, p. eight. The data revealed to date does not support the bank's effort to posture itself as a model employer harassed by a frivolous assertion. Because Ms. Johnson's claim is far from frivolous, that she has made

similar claims against others is relevant only on the question of her interest and commitment to this case. The Johnson case did not, according to the "docket sheet," move for substantial periods of time. The bank, however, in pointing this out, ignores the fact that there was substanial acivity in its companion case, Vuyanich.

The bank also urges that much the same question of interest and commitment of Ms. Vuyanich is raised because she moved to Atlanta, Georgia in June 1973 and does not personally seek reinstatement. Neither circumstance makes her an inadequate representative. First, her departure from the bank is claimed to be at the hand of the bank. The passage of time is a function of lack of progress in this suit. And this court is not prepared to charge all or most of that delay solely to her or her counsel. For reasons not immediately apparent, this suit before being transferred to this court had been transferred respectively to Judges Porter, Woodward, Taylor, and Mahon. The persistence of the class representative and their attorneys in the pursuit of this case over the past five years demonstrates commitment. In sum, on these facts, the lapse of time from Vuyanich's discharge ought not defeat her efforts to represent a class of persons who question ongoing employment practices.

Moreover, as otherwise pointed out in the order, it is this court's view that *Rodriquez* did not overturn this circuit's view that an applicant denied employment is not necessarily foreclosed from representing employees hurt by practices flowing from the same animus.

The rules of class membership and adequacy of representation are neither mechanical nor absolute. The ultimate judgment is whether the proffered representation is adequate and injury flowing from the same animus has been suffered. These are judgments, not mathematically precise calculations. Not surprisingly the courts of appeals have recognized the practical value of deferring to trial court discretion in their exercise, calling so much as it does upon parochial assessment of the counsel and personalities involved.

The Rule 23 requirements are overlapping. The inquiry into whether the class representative's claims case are typical implicate many of the concerns of the requirement of class membership. In *East Texas Motor Freight System* v. *Rodriquez*, 431 U.S. 395, 97 S.Ct. 1891, 52 L.Ed.2d 453 (1977), the class representative, unlike Vuyanich and Johnson, had suffered no injury from defendant's policies. *Rodriquez* does not mean that a class representative must suffer the *same* injury as his class members. Such a strict reading of its holding would frustrate the goals of Title VII. And Rule 23 must be interpreted in a manner congruent to the substantive rights sought to be enforced. As a person allegedly aggrieved by some of defendant's practices, Vuyanich and Johnson may represent other class members suffering from different practices, but the product of the same animus, certainly where there is a nexus among the practices. *See, Payne* v. *Travenol Lab., Inc.*, 565 F.2d at 900 (5th Cir. 1978).

Rule 23(b)(2) requires that "the party opposing the class has acted or refused to act on grounds generally applicable to the class, thereby making appropriate final injunctive relief or corresponding declaratory relief with respect to the class as a whole." This requirement has been met as demonstrated by the statistics cited above.

The bank reurged the motion to strike the sex allegations from the Vuyanich complaint. The motion to strike is DENIED. The Fifth Circuit in *Sanchez* v. *Standard Brands, Inc.*, 431 F.2d 455, 466 (5th Cir. 1970) stated that the EEOC investigation cannot be larger than that "which can reasonably be expected to grow out of the charge of discrimination." This language means that the EEOC in its investigation cannot enlarge the scope of inquiry suggested by a complainant's charge; it does not mean that by confining its investigation to less than the scope of inquiry suggested by a complainant's charge, the EEOC can limit a subsequent civil suit by the complainant. Vuyanich's charge with the EEOC was arguably sufficient to give notice to defendant that she was charging both sex

and race discrimination.[8] In *McDonnell Douglas Corp.* v. *Green*, 411 U.S. 792, 798-799, 93 S.Ct. 1817, 1822, 36 L.Ed.2d 668 (1973) the Court stated: "The Act does not restrict a complainant's right to sue to those charges as to which the Commission has made findings of reasonable cause, and we will not engraft on the statute a requirement which may inhibit a review of claims of employment discrimination in the federal courts." Thus, if an EEOC finding of no probable cause will not defeat a plaintiff's right to sue in federal court, certainly the EEOC's failure to investigate should not bar a plaintiff's right to sue on a charge which was properly noticed to the EEOC and to the defendant.

Conclusion

For the minority there is bitter irony in the circumstance that after over 12 years under Title VII only three blacks have managed to meet the "standards" for filling one of the 514 officer positions of the largest bank in the South, and one of its claimed civic leaders. To accept this "statistic" with aplomb renders Title VII a cruel hoax. The court is well aware that this is only a hearing regarding class questions and looks forward to a full development of the explanation of these apparent statistical disparities.

One final observation must be made. Much of the bank's evidence has suggested recent efforts to free its business practices of racist and sexist taints. As the bank doubtlessly is aware, or ought to be aware, there is no good faith defense to the legal and moral imperative that employee merit cannot cut along lines of race or sex. To those qualified, the doors cannot be closed. To those not qualified but struggling to get there, hope must not be denied.

The requirements of Rule 23 having been met, a phase I trial upon the merits of the class claims will commence on July 24, 1978.

/s/ PATRICK E. HIGGINBOTHAM
PATRICK E. HIGGINBOTHAM
UNITED STATES DISTRICT JUDGE

[8]The court has doubt that Vuyanich gave adequate notice that she was complaining of sex discrimination and may reconsider Judge Mahon's earlier order at any relief stage. Then the time period for such questions as back pay will be significant. The history of the bank's personnel policies relevant to the determination of liability are not confined to the period the bank has exposure to back pay liability.

APPENDIX H

UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF TEXAS DALLAS DIVISION

JOAN RANCE VUYANICH

v.

REPUBLIC NATIONAL BANK OF DALLAS

No. CA 3-6982-E.

Marh 12, 1976

MEMORANDUM OPINION AND ORDER

MAHON, District Judge.

This is an action under Title VII of the Civil Rights Act of 1964, 42 U.S.C. § 2000e *et seq.* ["the Act"], and under 42 U.S.C. § 1981, alleging racial and sexual discrimination in employment. Defendant has filed a motion to strike Plaintiff's allegations with respect to sex discrimination.

Plaintiff, a Negro woman, was dismissed from the employ of Defendant and subsequently filed written charges of discrimination with the Equal Employment Opportunity Commission ["EEOC"]. The Commission found reasonable cause to believe that Defendant had committed a violation of the Act and issued Plaintiff a right-to-sue letter. Plaintiff properly filed this action with the Court within the time period required by the Act.

In her charge with the EEOC, Plaintiff alleged that Defendant had discriminated against her, in violation of the Act, by discharging her because of racial prejudice. In her sworn charge of August 13, 1969, Plaintiff further stated that:

a) She was the only Negro in her department.

b) She and two Caucasian females, also new employees undertaking training, were instructed to do the same type of work but after being trained, the two Caucasians did not want to do their share of the work load.

c) She informed her immediate Supervisor, who agreed with her that the two Caucasian female co-workers should help with the work load.

d) The Supervisor talked to the two co-workers several times about the matter.

e) About a month after she had been working for the Respondent, her Supervisor, who knew of her dating a Caucasian told her that the world was not ready for mixed marriages.

f) She married a Caucasian on June 28, 1969.

g) On July 23, 1969, when her husband went to take her to lunch, she introduced him to the Supervisors of her department.

h) The following morning, she was called into conference by her Supervisor and was told that she was not suitable for the job because of a "personality clash" with her co-workers in her department.

i) Her Supervisor also told her that she probably did not need a job anyway because her husband was a Caucasian.

District Director's Findings of Fact, EEOC, Dallas District Office, *Vuyanich* v. *Republic National Bank*, May 23, 1972, at 2 ["EEOC/DDFF"].

The District Director of the Dallas District Office of the EEOC made, among others, the following findings of fact:

a) It is undisputed that the reason for discharging the Charging Party was because of obvious personality conflicts between the Charging Party and two Caucasian female co-workers, all new employees and trainees in the position of Contact Clerk, Money Order Section.

b) At least two presently employed (at the time of the investigation) and one former Negro employee of the Respondent confirm that one of the Charging Party's

Caucasian co-workers, Caucasian A, was racially prejudiced and did not like working with Negroes.

c) The Respondent Supervisor was aware of the problem, but did not take affirmative steps by means of transferring the Charging Part or the Caucasian to another job, but instead, to solve the problem, chose to discharge the Charging Party.

EEOC/DDFF at 6.

Defendant has moved to dismiss Plaintiff's allegations as to discrimination on the basis of sex, on the ground that the charge filed with and investigated by the EEOC was based entirely on racial discrimination.

The law in the Fifth Circuit regarding variance between charges and complaints in actions under the Act is governed by *Sanchez* v. *Standard Brands, Inc.*, 431 F.2d 455 (5th Cir. 1970 ["*Sanchez*"], recently reaffirmed and elucidated in *Gamble* v. *Birmingham So. RR. Co.*, 514 F.2d 678 (5th Cir. 1975) ["*Gamble*"].

In *Sanchez*, Plaintiff had originally charged sex discrimination, but the EEOC investigation revealed national origin discrimination. The complaint in federal court included an allegation of national origin discrimination. Citing *King* v. *Georgia Power Co.*, 295 F.Supp. 943 (N.D.Ga.1968) ["*King*"], the *Sanchez* court found "sufficient continuity running through the original charge and the amended charge to the judicial proceedings which followed" to allow the complaint to stand. *Sanchez*, 431 F.2d at 465.

> We found in *Sanchez* that the purpose of the charge is to trigger the investigatory and conciliatory procedures of the EEOC. It was logical to limit the scope of the civil action to the scope of the EEOC investigation "which can reasonably be expected to grow out of the charge of discrimination." *Sanchez* v. *Standard Branch, Inc., supra*, at 466. We further emphasized the importance of the Commission's role in obtaining voluntary compliance. On the

> other hand, we also emphasized our reluctance to allow procedural technicalities to bar claims under the Act, *id.* at 461, 465, and that "the scope of an EEOC complaint should not be strictly interpreted." *Id.* at 465; see also *Tipler* v. *E. I. duPont*, 6 Cir. 1971, 43 F.2d 125, 131.

Gamble, 514 F.2d at 687-688. The *Sanchez* court held that allegations in the complaint filed with the federal district court "may encompass any kind of discrimination *like* or *related* to allegations contained in the charge and growing out of such allegation during the pendency of the case before the Commission. [emphasis added]." *Sanchez*, 431 F.2d at 466; *King*, 295 F.Supp. at 947.

While *Sanchez* involved a situation where an EEOC investigation, and a complaint based thereon, exceeded the scope of the original charge to the EEOC, the court in *Gamble* was faced with a complaint that exceeded both the charge and the EEOC investigation. *Gamble* was a suit by a class of Black switchmen against a defendant railroad company. The gravamen of the plaintiff's claim was that they had consistently been denied the right to qualify as conductors, and this complaint to the EEOC was so limited. The EEOC investigation was also limited to an investigation of whether the defendant violated the Act "by denying promotional opportunity to negro switchmen, as alleged." *Gamble*, 514 F.2d at 687. Before the district court, however, the plaintiffs also complained that they were denied promotion to supervisors. The district court held that supervisory promotions where (sic) outside the permissible scope of the trial The evidence adduced at trial, nevertheless, showed that virtually all supervisors were chosen from the conductor roster. The Fifth Circuit, in reversing the district court, held that "charges are to be liberally construed, . . . [so] the complaint that 'I was not allowed to promote to conductor' implicitly includes the complaint that 'I was not allowed to promote to supervisor,' since supervisors are chosen from the ranks of conductor." *Id.* at 688.

> The supervisor complaint is certainly "like or related to" the conductor complaint and an investigation of the supervisor situation could reasonably be expected to grow from the original complaint. Nevertheless, the EEOC apparently did not in fact investigate beyond the conductor charge. This, says the Railroad, limits the permissible scope of the complaint in the federal court.
>
> The Railroad further urges that it has a right to attempt conciliation on the supervisor question. As we have indicated, the statutory scheme contemplates conciliation. But we have clearly held that conciliation efforts by the EEOC are not a jurisdictional prerequisite to a Title VII suit. We have also held that a plaintiff may maintain a suit even when the EEOC has found no reasonable cause to believe discrimination has occurred. Therefore, although conciliation is encouraged, it is not an inalienable right of a defendant, especially where, as here, conciliation attempts with the defendant on a similar question failed. [citations and quotation omitted].

Id.

The Fifth Circuit in *Gamble* went on to discuss other policies besides conciliation that should be considered. These policies include the protection of the equality of opportunity among all employees and prospective employees, the fact that the charging party may be ignorant of or unable to thoroughly describe the discriminatory practices to which they are subjected, and the judicial economy in not requiring the plaintiffs to go back to the EEOC to begin anew with their additional allegations.

The (sic) interpreting the *Sanchez* doctrine, this Court must also be ever mindful of the considerations and guidelines laid down by the Supreme Court in *McDonnell Douglas Corp.* v. *Green*, 411 U.S. 792, 93 S.Ct. 1817, 36 L.Ed.2d 668 (1973) ["*Green*"]. In that case, the Supreme Court held that the absence of an EEOC finding of reasonable cause did not bar a suit in federal court under the Act.

> Respondent satisfied the jurisdictional prerequisites to a federal action (i) by filing timely charges of employment discrimination with the Commission and (ii) by receiving and acting upon the Commission's statutory notice of the right to sue, 42 U.S.C. §§ 2000e-5(a) and 2000e-5(e). The Act does not restrict a complainant's right to sue to those charges as to which the Commission has made findings of reasonable cause, and we will not engraft on the statute a requirement which may inhibit the review of claims of employment discrimination in the federal courts. The Commission itself does not consider the absence of a "reasonable cause" determination as providing employer immunity from similar charges in a federal court, 29 CFR § 1601.30, and the courts of appeal have held that, in view of the large volume of complaints before the Commission and the nonadversary character of many of its proceedings, "court actions under Title VII are de novo proceedings and . . . a Commission 'no reasonable cause' finding does not bar a lawsuit in the case." [citations omitted].

Green, 411 U.S. at 798-799, 93 S.Ct. at 1822-1823, 36 L.Ed.2d at 675-676.

The Third Circuit, has construed the *Sanchez* doctrine in light of *Green*. In *Wetzel v. Liberty Mutual Ins. Co.*, 511 F.2d 199 (3d Cir. 1975) ["*Wetzel*"], the plaintiffs checked the wrong box on the EEOC "Notice of Charge" form. The *Wetzel* court held that the only jurisdictional prerequisites to a suit in federal court under the Act were a timely filing of charges with the EEOC and the receiving and acting on the EEOC notice of right to sue. Lay persons, the *Wetzel* court reasoned, were not to be denied access to the federal courts because of a technical error. Such denial would seriously undermine the policies of the Act. *Wetzel*, 511 F.2d at 202-203.

Finally, in *Alexander* v. *Gardner-Denver Co.*, 415 U.S. 36, 94 S.Ct. 1011, 39 L.Ed.2d 147 (1974) ["*Alexander*"], the Supreme Court further elaborated on the policies it had

enunciated in *Green*. *Alexander* involved the issue of whether a labor arbitration agreement could bar a suit under the Act. In commenting on the importance of the complainants role in the statutory scheme of the Act, the Court stated:

> Even in its amended form, however, Title VII does not provide the Commission with direct powers of enforcement. The Commission cannot adjudicate claims or impose administrative sanctions. Rather, final responsibility for enforcement of Title VII is vested with federal courts. The Act authorizes courts to issue injunctive relief and to order such affirmative action as may be appropriate to remedy the effects of unlawful employment practices. 42 U.S.C. §§ 2000e-5(f) and (g) (1970 ed., Supp. II). Courts retain these broad remedial powers despite a Commission finding of no reasonable cause to believe that the Act has been violated. *McDonnell Douglas Corp.* v. *Green, supra*, 411 U.S. at 798-799, [93 S.Ct. 1817, at 1822-1823, 36 L.Ed.2d 668]. Taken together, these provisions make plain that federal courts have been assigned plenary powers to secure compliance with Title VII.
>
> In addition to reposing ultimate authority in federal courts, Congress gave private individuals a significant role in the enforcement process of Title VII. Individual grievants usually initiate the Commission's investigatory and conciliatory procedures. And although the 1972 amendment to Title VII empowers the Commission to bring its own actions, the private right of action remains an essential means of obtaining judicial enforcement of Title VII. 42 U.S.C. § 2000e-5(f)(1) (1970 ed., Supp. II). In such cases, the private litigant not only redresses his own injury but also vindicates the important congressional policy against discriminatory employment practices.

Alexander, 415 U.S. at 44-45, 94 S.Ct. at 1018, 39 L.Ed.2d at 156. *See also Love* v. *Pullman Co.*, 404 U.S. 522, 527, 92 S.Ct. 616, 619, 30 L.Ed.2d 679, 685 (1972) ("[T]echnicalities are particularly inappropriate in a statutory scheme in

which laymen, unassisted by trained lawyers initiate the process.").

Having set forth the relevant Supreme Court and Fifth Circuit caselaw, the narrow question before the Court is whether, under the facts of this case, Plaintiff should be allowed to maintain her allegations concerning sexual discrimination in the absence of any such specific charge to the EEOC and in the absence of any EEOC investigation into those allegations.

The Court agrees with Defendant that the *Sanchez* doctrine and the Supreme Court's decisions in *Green* and *Alexander* do not diminish the importance of the statutory policy favoring EEOC investigation and conciliation. *See generally EEOC v. Western Electric Co.*, 382 F.Supp. 787 (D.C.Md.1974); *Smith v. United Press Int'l*, 8 E.P.D. ¶ 9512 (S.D. N.Y.1974); *Kinsey* v. *Legg, Mason and Company, Inc.*, 60 F.R.D. 91 (D.D.C. 1973); *Oubichon* v. *North American Rockwell Corp.*, 482 F.2d 569 (9th Cir. 1973); *Fix* v. *Swinterton and Walberg Co.*, 320 F.Supp. 58 (D.Colo. 1970); *Phillips* v. *Columbia Gas*, 347 F.Supp. 533 (S.D.W. Va.1972), *aff'd*, 474 F.2d 1342 (4th Cir. 1973); *Edwards* v. *North American Rockwell Corp.*, 291 F.Supp. 199 (C.D.Cal. 1968). Rather, *Sanchez* holds that the "like or related to" rule protects the statutory policy favoring EEOC investigation and conciliation by not allowing a discriminator to escape a possible lawsuit on a technicality, while giving the EEOC adequate opportunity to investigate alleged discriminations. *Sanchez*, 431 F.2d at 466-467. To effectuate this policy, *Sanchez* emphasizes that it is the factual allegations of the charge to the EEOC that must control. *Id.* at 462-464.

Nevertheless, the policy favoring reconciliation by the EEOC is not as absolute as Defendant urges. *Green*, *Gamble*, and *Wetzel* establish that this policy is by no means jurisdictional, and *Alexander* and *Gamble* point up other policies that must also be considered.

Defendant relies heavily on *Jiron* v. *Sperry Rand Corp.*, 9 E.P.D. ¶ 9990 (D.Utah 1975) [*Jiron*]. In that case, the

plaintiff, having filed a sex discrimination charge with the EEOC, added racial and national origin discrimination in its complaint in federal court. The *Jiron* court distinguished the *Sanchez* "like or related to" rule on the grounds that sex discrimination is different in premise and kind from racial and national origin discrimination. Emphasizing the statutory policy of EEOC reconciliation, the *Jiron* court went on to dismiss the plaintiff's additional allegations.

The "like or related to" rule of *Sanchez*, however, does not seek the abstract comparison of different types of discrimination. Such a test would read the *Sanchez* doctrine out of existence. Instead, the *Sanchez* doctrine relies on the facts presented to the EEOC. The "like or related to" rule requires a determination of whether any additional charge in the plaintiffs' federal court complaint is of a similar character or nature to that charged before the EEOC in light of the facts alleged to the EEOC. The Fifth Circuit has defined the "like or related to" rule of *Sanchez* as whether the additional complaint, and an investigation by the EEOC, could reasonably be expected to grow from the original complaint. *Gamble*, 514 F.2d at 688. In other words, if the additional charge arises naturally and logically from the facts presented to the EEOC, it is related to the original charge. *See also Barnes* v. *Lerner Shops of Texas, Inc.*, 323 F.Supp. 617 (S.D.Tex.1971).

In this case, Plaintiff alleged to the EEOC, among other facts, that her supervisor told her that she probably did not need a job anyway, because her husband was a Caucasian. Plaintiff alleged that she was told this immediately prior to her dismissal, and within twenty-four hours after introducing her husband to her supervisor. This statement is Plaintiff's primary factual allegation of discrimination, and it clearly smacks of sexual as well as racial discrimination. A similar statement could not logically be made to a male. It is implicit in the statement that the male spouse is the more important economically, and that the dismissal might not occur had the Plaintiff been a Negro male. The failure of the EEOC to appreciate the sexual

implications of this statement will not bar Plaintiff from bringing suit on sexual discrimination in federal court. *See EEOC* v. *MFC Services*, 10 F.E.P. Cases 943 (S.D.Miss. 1975); *EEOC* v. *General Electric Co.*, 376 F. Supp. 757 (W.D.Va. 1974). A lay person who is a member of more than one minority group, and who feels himself discriminated against, may not be able to determine prior to an investigation on what exact basis the discrimination was incurred. Where the facts plead to the EEOC reveal the possibility of more than one type of discrimination, the complainant will not be barred from bringing suit on any basis "like or related to" the facts stated to the EEOC.

Moreover, in light of the facts of this case, the policy favoring EEOC reconciliation is clearly outweighed by the other policies discussed in *Alexander* and *Gamble*. Through interrogatories, it is evident that at the time Plaintiff's charge was before the EEOC, there were four other charges of discrimination against Defendant pending with the EEOC. Two of these additional charges were based solely on racial discrimination, one solely on sexual discrimination, and one on both racial and sexual discrimination. Though these charges were not exactly identical to Plaintiff's, it is evident that Defendant had adequate opportunity to conciliate with the EEOC on the bases of both race and sex. *See Gamble*, 514 F.2d at 688.

In light of the number of complaints pending against Defendant at the same time, the pragmatic consideration in *Alexander* concerning the large volume of cases before the EEOC becomes more significant. Here it would certainly not be in the best interests of judicial economy to force Plaintiff to bring further action before the EEOC. *See Gamble*, 514 F.2d at 689. And to allow Defendant to avoid this action in federal court when other charges of sexual discrimination were currently pending against it would circumvent the policy of the Act. *See Alexander*, 415 U.S. at 45, 94 S.Ct. at 1018, 39 L.Ed.2d at 156. *Gamble*, 514 F.2d at 688-689; *Sanchez*, 431 F.2d at 466-467.

Defendant additionally seeks to dismiss Plaintiff's allegations of sex discrimination on the ground that such discrimination cannot constitute a company policy, relying on *Corne v. Bausch and Lamb, Inc.*, 390 F.Supp. 161 (D.Ariz.1975) ["*Corne*"]. *Corne* stands for the proposition that acts that are merely unwelcome sexual advances cannot constitute sexual discrimination under the Act. But *Corne* cannot be applied to the facts of this case. The major consideration in the *Corne* decision was that such advances could not be limited to the female sex, but could be made as well toward males. The Court in *Corne* concluded that such advances, therefore, did not constitute discrimination. In the present case, the facts alleged to the EEOC can only be construed as discriminatory toward the female sex. They are not, as in *Corne*, merely sexual in nature.

The Court is therefore of the opinion that Plaintiff's allegations of sexual discrimination are properly before the Court.

Accordingly, the Court ORDERS that Defendant's motion to strike allegations with respect to sexual discrimination is denied.

/s/ ELDON B. MAHON

ELDON B. MAHON
UNITED STATES DISTRICT JUDGE